

# Sensory Eye FX 2

Software Manual



Sensory Eye FX 2 software is easy to use and packed full of useful features that are designed to help develop access and communication skills through creative play and exploration. The software supports Tobii Dynavox eye gaze devices and offers a number of thoughtfully designed activities with customiasble properties and a range of gaze interaction options.

This manual details all aspects of working with the software from launching activities through to activity customisation. The manual features screenshots of the software, illustrated with explanations highlighting the functionality. We hope you enjoy using Sensory Eye FX 2.



Sensory Eye FX 2 software is developed in the UK by Sensory Guru Ltd







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# GETTING STARTED

Take time to read through the getting started information as it introduces several concepts that are essential to know in order to get the most from Sensory Eye FX 2.



# **Sensory Eye FX 2 - Getting Started**

### 1 Install Sensory Eye FX 2

Run the installer and complete the installation process. The shortcut will be visible on your desktop





#### 2 Run Sensory Eye FX 2

When loaded, Sensory Eye FX 2 will open and obtain the active user's gaze profile. The gaze cursor will be visible and it will be possible to select an activity.



# 3 Run an activity

Launch one of the activities in Sensory Eye FX 2. You will be able to interact with the activity using gaze.

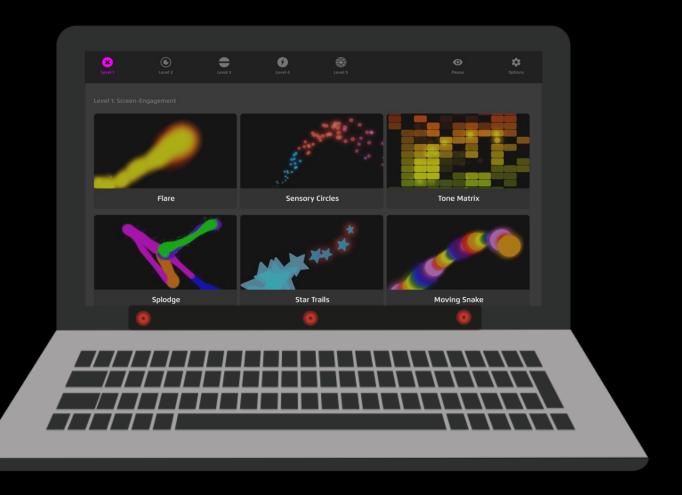




# **How to Control Sensory Eye FX 2**

Sensory Eye FX 2 software can be controlled with gaze, gaze + switch, mouse and touch. It is possible to deactivate gaze control for selection of activities if the user is not ready for this level of control. This means it will not be possible to inadvertently select buttons etc.

The gaze friendly interface enables users to navigate and make choices. It is possible to access options and change activity settings with gaze.



# **Controlling Activities**



Sensory Eye FX 2 activities are loaded from the Sensory Eye FX 2 user interface.

#### **Starting Activities**

- Click an activity button to open the launch window.
- 2 Click the play button to start the activity.
- 3 Open and edit game options to make changes.

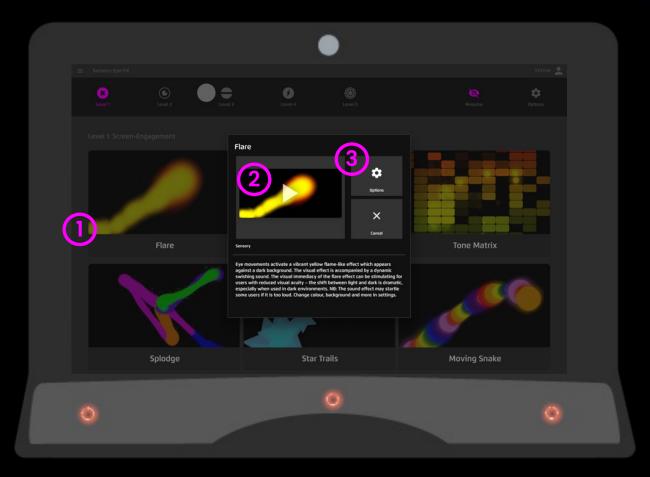
#### **Exiting Activities**



Select the X exit button in game. If the button is hidden, to prevent accidental triggering, the area at the top right is still responsive to mouse click and touch (even though the button is invisible)



Press ESC key - top left of keyboard



# **Using Different Inputs with Sensory Eye FX 2**



Sensory Eye FX 2 can be interacted with through a range of different inputs: Gaze, Gaze and Switch, Mouse and Touch.



#### Gaze

Options for cursor, dwell method, colour can be set in each activity



#### **Gaze and Switch**

Use Gaze to point and Switch to select



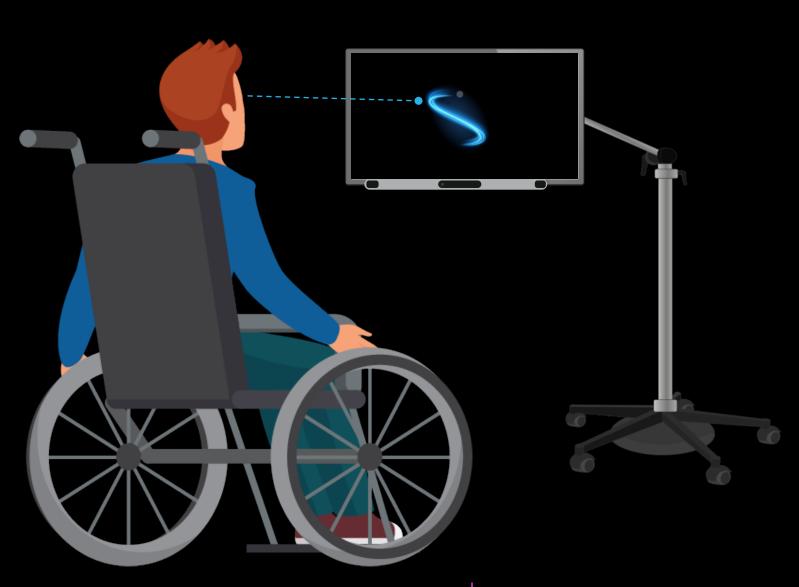
#### Mouse

Mouse overrides gaze to allow facilitators to guide users attention to areas of interest



#### **Touch**

Requires touch screen – has the same functionality as mouse





# Sensory Eye FX 2 SOFTWARE

Sensory Eye FX 2 Software is easy to use and packed with useful features. The following section of the manual breaks down the different functions of the software UI using screenshots and easy to understand descriptions.



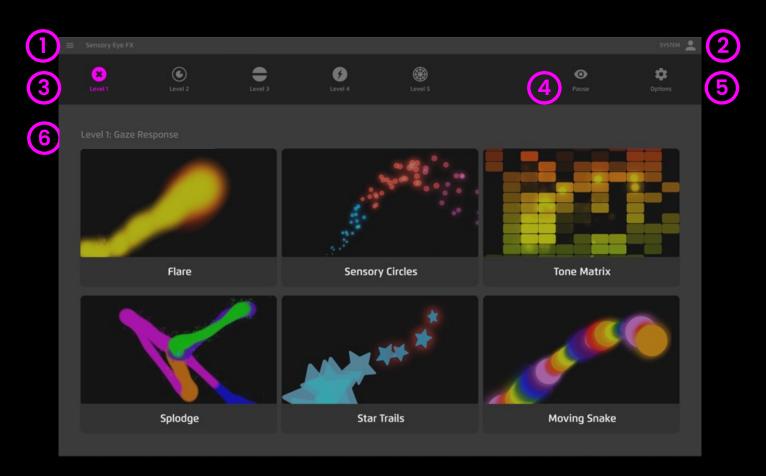
#### **Home Screen**

When Sensory Eye FX 2 starts this is what you see!

The **Home Screen** has a simplified UI that has been designed to allow gaze users to navigate the software and make their own selections.

#### How to use it

- Side Menu Click to open the menu <u>See page 15.</u>
- **Users** Displays the selected user. Click the user icon to open the user control panel.
- **Levels** Activities are sorted into levels, where each level develops a new Eye Gaze skill.
- Pause/Resume Gaze Pause/Resume Gaze Control.
- **5 Options –** Opens options panel
- 6 Activity Selection Shows 6 activities in each level. Select an activity to play.





### **Side Menu**

The hamburger icon located at the top left of header menu opens the side menu.

The side menu is the primary navigation menu used to access the different areas of the software. Simply touch or click on a menu item to navigate.

#### v2.1.8 b0016



#### Sensory Eye FX 2

- ♠ Activities
- Media Library
- Screenshots
- Recordings
- Config
- Licensing Info



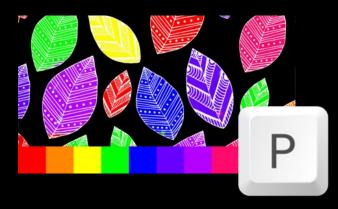


# **Keyboard Shortcuts**

Sensory Eye FX 2 has a number of keyboard shortcuts that are helpful for observing and capturing session information.

Variable dwell time controlled using the up/down arrow keys is particularly useful, as is the real-time heatmap that displays the regions the user has accessed and attended too.

TIP: A wireless keyboard is a useful addition for anyone supporting users on I-13/I-16 devices.



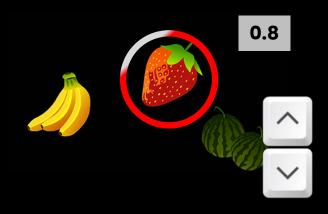
"P" key will take a screenshot in any activity and save to screenshots



"H" key will display a heatmap (press "H" to toggle on/off)



"R" key will start and stop a screen video recording and save to Recordings (press "R" to toggle on/off)



"Up" and "Down" keys control dwell time, allowing dwell time to be changed in real-time.



# **Options**

The Options panel is opened by selecting the options icon in the header bar.

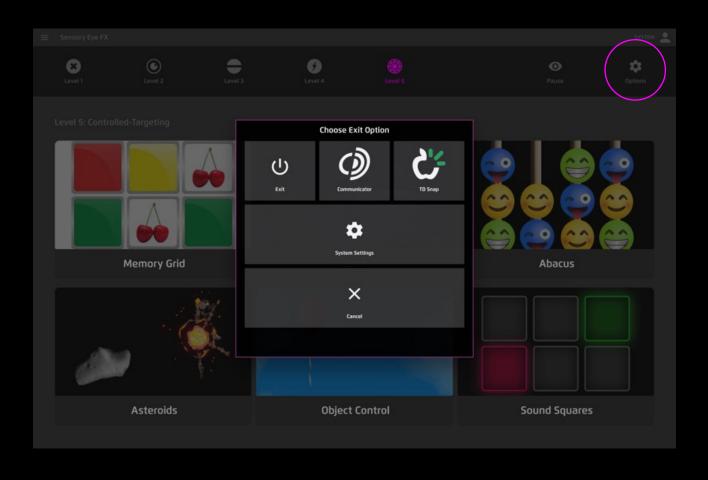
#### How to use it

- ( ) Exit Closes software
- System Settings Opens system settings config
- X Cancel Closes options window.

Communicator / TD Snap – Launches
Communicator or Snap Core software if installed
on the machine.











# Sensory Eye FX 2

Activities are grouped into 5
levels of exploration with each
level introducing a slightly more
advanced mode of gaze
interaction and game play

01



#### **GAZE RESPONSE**

The eye creates the stimuli –
Gaze Response activities allow
users to explore cause and
effect; when they look,
something happens! When they
look away, it stops!

02



#### **GAZE INTERACTION**

Gaze Interaction activities introduce some of the interaction methods of eye gaze such as dwell activation and targeting. These activities allow users to explore how their gaze can trigger a response from the objects in the screen





03



04



05



#### **GAZE REGIONS**

Gaze Region activities stimulate visual attention by encouraging users to target specific areas of the screen to improve gaze control skills, helping to develop the targeting and attention skills necessary to achieve a robust calibration.

#### **GAZE EXPLORATION**

Gaze Exploration activities are designed to promote exploration and play, encouraging engagement with a wider area of the screen.

#### **GAZE CONTROL**

Gaze Control activities can help users achieve greater control, a higher degree of accuracy and a more detailed understanding of the dwell and switch activation functions

# ACTIVITIES

Sensory Eye FX 2 has 30 activities designed for developing early eye gaze skills.

Each activity is supported by a description of how it can be used to explore gaze interaction and options to personalise and customise.

The following pages details each activity and its customisation options.



# **Opening Options**

Sensory Eye FX 2 makes it easy to customise and personalise activities.

#### **How it works**

- Click an app button to open the app launch window.
- 2 Select options Activity options window will open



# **Customising Activities**

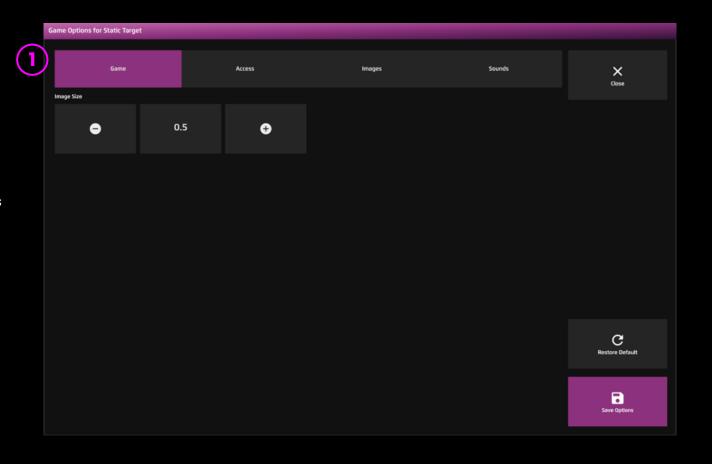


Each activity in Sensory Eye FX 2 has options for customisation. Some activities allow you to alter the background and stimulus images. It is important to use content that is likely to harness attention and help users engage.

For example, pictures of family members can be particularly motivating, as can well known cartoon characters. If age appropriateness is a factor in your environment, you will be pleased to know that it is possible to modify the assets to fit any criteria or notion of appropriateness, including inappropriateness such as xxx for those so inclined. Proceed with caution...

#### **How it works**

- Select an activity > Select options. The game options window will open.
- Use the tabs at the top of the window to edit tab related parameters.
- Select Save Options to save your changes.
- Select Restore Defaults to reset any changes to app Defaults.
- X Select Close to return to activity play pop-up



# File formats



#### **Background Images**





- All background images should be .jpg or .png format.
- The minimum size should match the native resolution of your monitor. The latest Tobii I-Series (I-16, 1-13) are 1920 x 1080 pixels.

NB Images that are smaller than the native resolution will be scaled up. This may result in a stretch, grainy image.

#### **Videos**



- All videos should be .mp4 format.
- The video resolution should be HD (1920 x 1080)

#### **Object Images**



- · Object images must be .png format
- .png files include transparency, meaning you will only the object and not a frame around it.
- Recommended sizes in the region on 128 x 128 512 x 512 pixels.

#### **Audio**



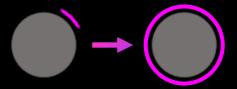
- Audio files must be .mp3 format.
- Object sounds should last no longer than I second
- · Background sounds should loop

# Dwell/selection methods



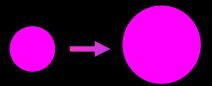
#### **Cursor Dwell: Animate**

When cursor is selected to "Animate" a ring will appear around the cursor, animated as a closing ring. The animated ring shows the dwell activation progress.



#### **Cursor Dwell: Grow**

When cursor is selected to "Grow" the cursor will appear smaller, before growing in size to show dwell activation progress.



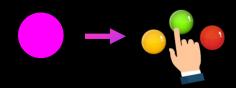
#### **Dwell Lock**

The shrinking dot is a well known cursor snapping method that latches to the centre of a gazeable button / object to make it easier select. This helps to reduce the requirement for accuracy and steady gaze.

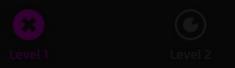


#### **Gaze Switch**

Gaze Switch has a cursor to show where the user is looking. When gazing at a button/object the selection is activated and a switch input will trigger the selection













.evel 1: Gaze Response

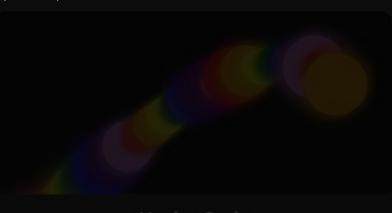


# LEVELI GAZE RESPONSE

The eye creates the stimuli – Gaze Response activities allow users to explore cause and effect;

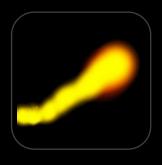
when they look, something happens! When they look away, it stops!





### **Level 1: Activities Overview**















Flare

**Sensory Circles** 

Star Trails

**Tone Matrix** 

Splodge

**Moving Snake** 

#### **Gaze Effects**

The effect marks the users gaze point and appears while the user looks at the screen.

#### Contrast

All effects appear against black backgrounds as default to maximise contrast. You may wish to explore alternative backgrounds and changing the effect parameters to experiment.

#### **Fade out**

The effects fade out when the user looks away from the screen, reducing the light from the display. The reduction of contrast can be a prompt for users to reengage with the effect.

#### Sound

Sounds accompany most of the effects - make sure sound source is direct from the display. Some user will be auditory dominant, and sound can be helpful for orientating gaze to the sound source.

#### **Movement**

The effect will move in response to gaze and generate movement outside of the user's immediate gaze point in order to stimulate wider exploration of the screen. Experiment with effect size to explore movement options

### **Level 1: Objectives**



**Level 1 objectives** include: assisting the user to locate the screen, generate a visual effect by looking at the screen, and to respond in a way that indicates they are aware of the visual effect. Ultimately, you would like the user to be aware that they are making things happen and we should be working toward that primary goal, where possible.

#### Assist the user to locate the screen

It may not be obvious that there is any thing to look at if you are in a dark environment. To help orientate the user's gaze to the display try:

#### 1. Generating the effect

Trigger the visual effect with mouse, touch or gaze. The user will take over as soon as they look at the screen.

#### 2. Increasing effect radius

Increase the radius of the effect in settings to provide more visual feedback.

#### 3. Change background

Switch background colour or load an image or a video to explore motivation and attentional preferences

#### 4. Change effect colour

Change the effect colour in settings, along with other activity specific properties as outlined on the activity pages

#### Generate a visual effect

Encourage screen wide exploration of the visual effect to help locate the boundaries of the screen, play with looking and looking away and the curiosity this may invoke when shifting between effect on and off states, explore the cause and effect, take screenshots and record videos that can be used to show levels of engagement, activity duration and screen interaction. Use the editing capabilities to adapt the activities to individual needs and preferences.

#### **Observe responses**

Responses may include sustained looking, exploration of the screen, looking away and then re-engaging, being startled by the effect, shift in body tone, smiling, intentionally disengaging, turning away and so on. Observe user responses and proceed with activities that increase engagement.

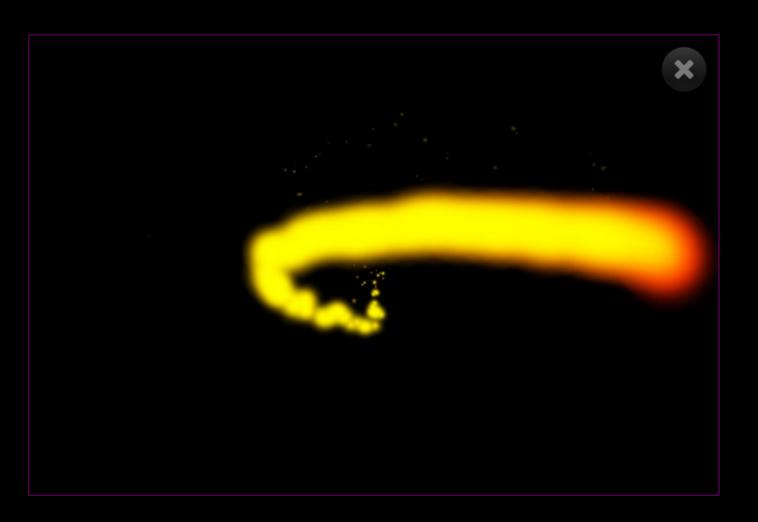




### Flare

Eye movements activate a vibrant yellow flame-like effect which appears against a dark background. The visual effect is accompanied by a dynamic swishing sound. The visual immediacy of the flare effect can be stimulating for users with reduced visual acuity – the shift between light and dark is dramatic, especially when used in dark environments.

NB: The sound effect may startle some users if it is too loud. Change colour, background and more in settings.

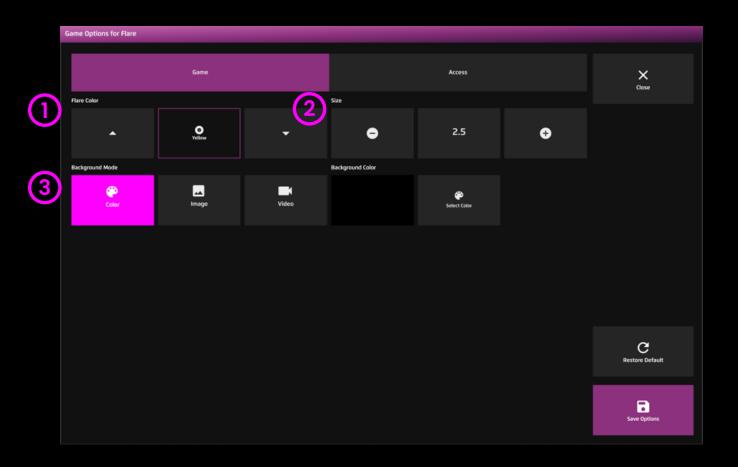






### Flare - Game Options

- Flare colour Change the flare colour > select from: yellow (default), green, blue, purple or pink
- Size Adjust the effect size. A stimulus size between 1 9 can be selected in increments of 0.5. Default = 2.5
- **Background Mode** Change the background selecting from the following:
  - colour set background colour from colour picker window
  - Image Add background image from media library or upload your own. Supports .jpg and .png formats.
  - 3. Video Add video from media library or upload your own. Supports .mp4 file formats



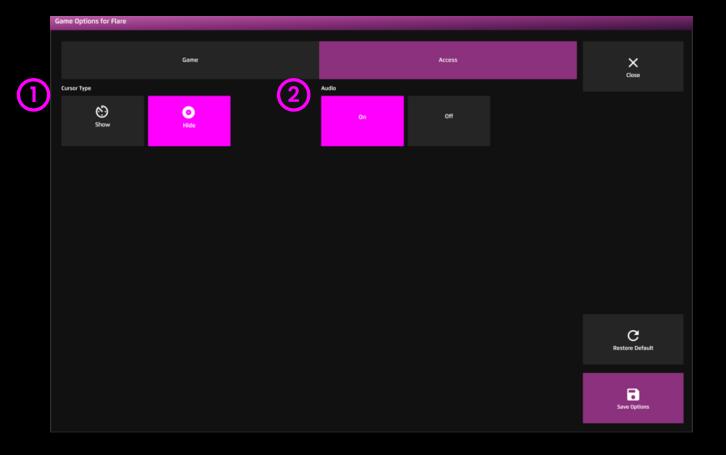
# Flare - Access Options

Cursor Type – Select whether to show or hide cursor.

Default = Hide.

Audio – Flare makes a whooshing sound as the effect travels across the screen.

Turn audio on/off. Default = On



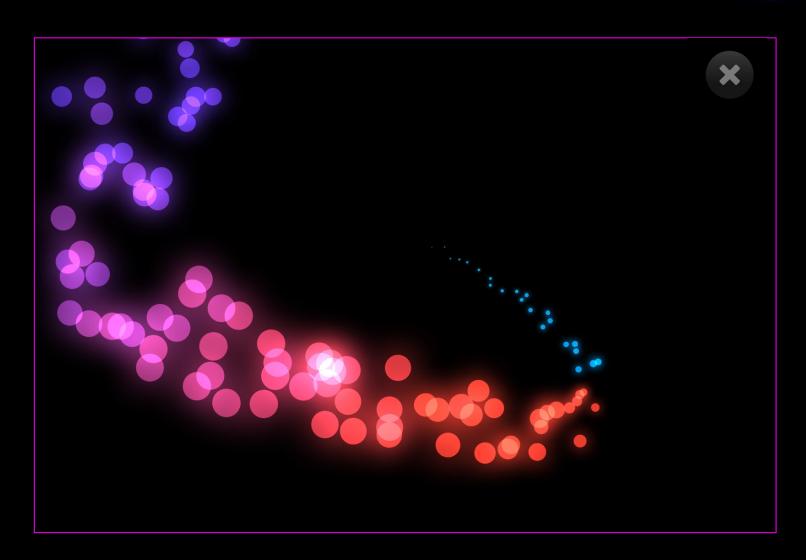


# **Sensory Circles**

Sensory Circles is a gentle particle emitting effect that produces a trail of colourful discs in response to eye movement – the effect is accompanied by chiming musical notes.

When the user diverts their gaze away from the screen the sounds stop, and the circles gently dissipate leaving a slow fading visual residue on the screen.

Change colour, background and more in settings.

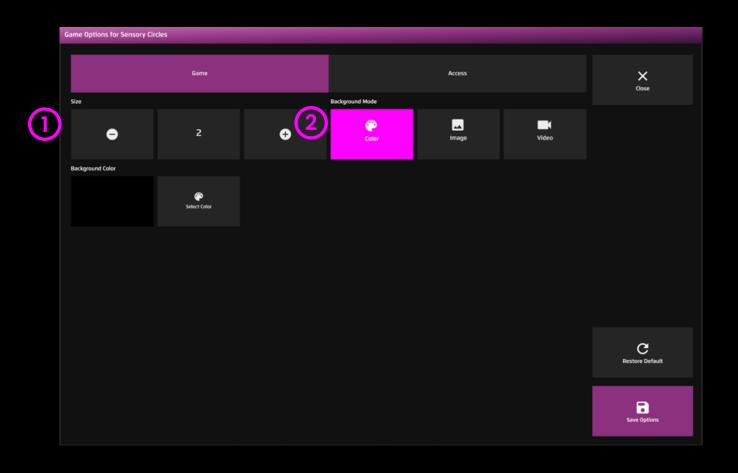






# Sensory Circles - Game Options

- Size Adjust the effect size. A stimulus size between 1 9 can be selected in increments of 0.5. Default = 2.
- **Background Mode** Change the background selecting from the following:
  - colour set background colour from colour picker window. (Default = black)
  - Image Add background image from media library or upload your own. Supports .jpg and .png formats.
  - 3. Video Add video from media library or upload your own. Supports .mp4 file formats





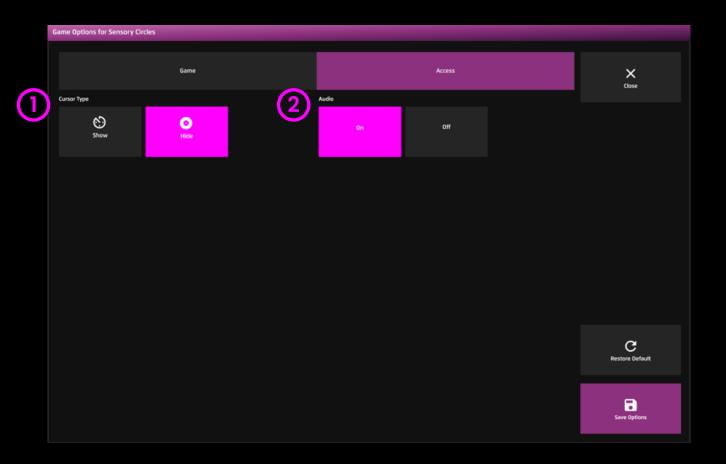
# **Sensory Circles - Access Options**

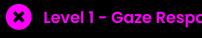
Cursor Type – Select whether to show or hide cursor.

Default = Hide.

**Audio** – Flare makes a whooshing sound as the effect travels across the screen.

Turn audio on/off. Default = On

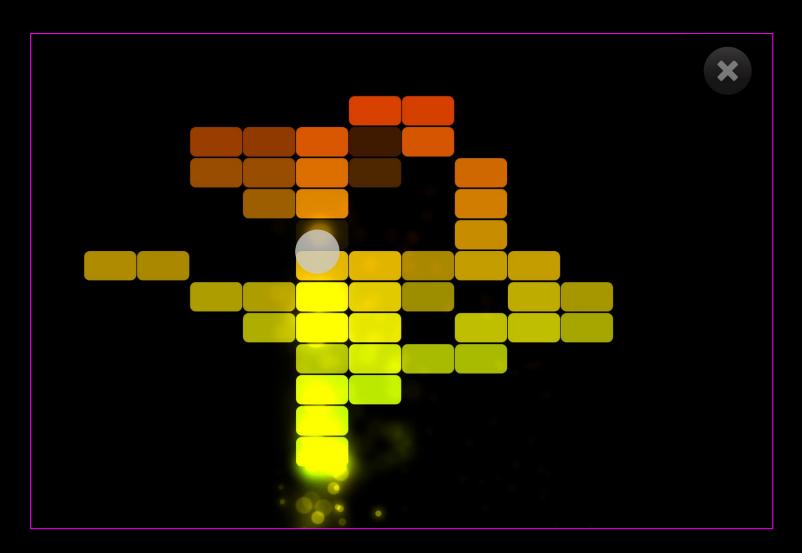






### **Tone Matrix**

Tone Matrix is a colourful musical activity with notes arranged from low to high in a sequence. The downward cascading visual effect is designed to stimulate vertical eye movements, whereby the user can learn that moving their eyes up and down on the vertical axis changes the colour and the pitch. Change colour, background, matrix size and more in settings.





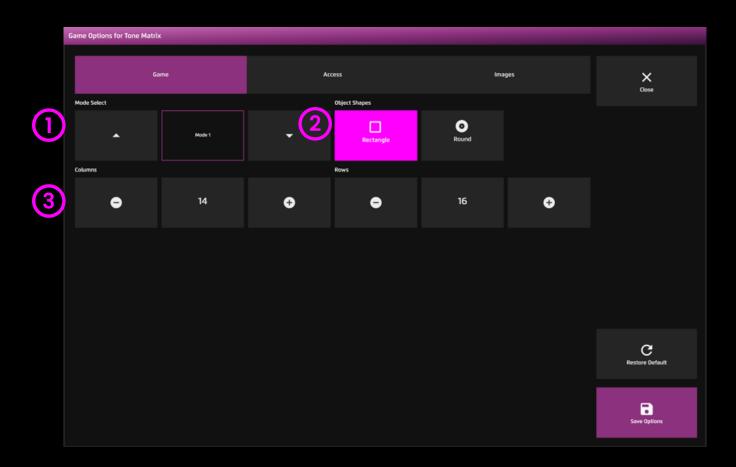


# Tone Matrix - Game Options

- Mode Select Select from 4 colour modes.

  Each mode has a different set of colours.

  Default = Mode 1.
- **Object Shapes** Select from rectangle or round shapes. (Default = Rectangle)
- 3 Columns / Rows Increase/decrease the number of objects displayed on the vertical/horizontal axis. Choose from between 1 20. (Default = 14 columns / 16 rows)



# (•)

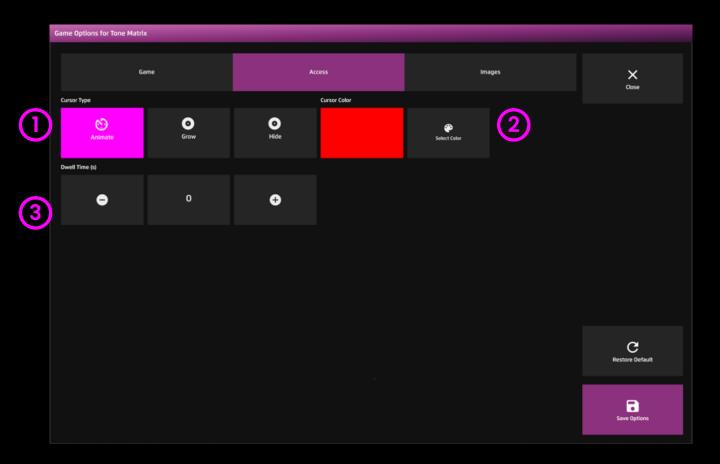
# Tone Matrix - Access Options

Cursor Type – Select whether to show an animated or growing or hide cursor.

Default = Animate.

- **Cursor colour** Click select colour to customise cursor colour. Default = red
- 3 **Dwell Time** Select dwell time from between -0 5 seconds in increments of 0.1.

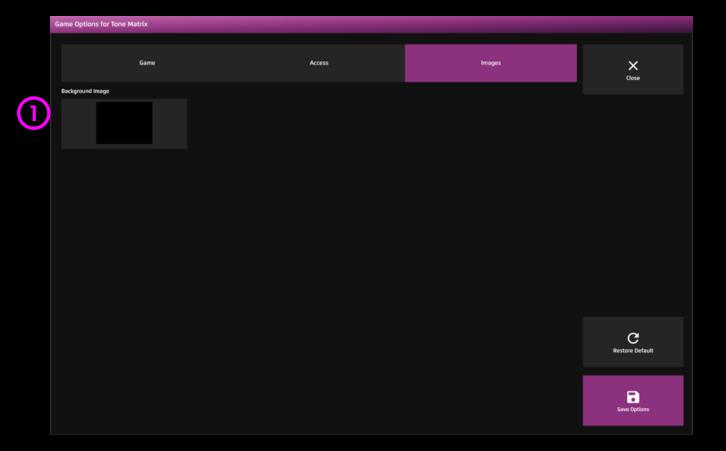
  Default = 0





# Tone Matrix - Images Options

Background Image – Add an image you would like to use as your main background. Select from the Sensory Eye FX 2 Media Library or upload your own. Default = None.





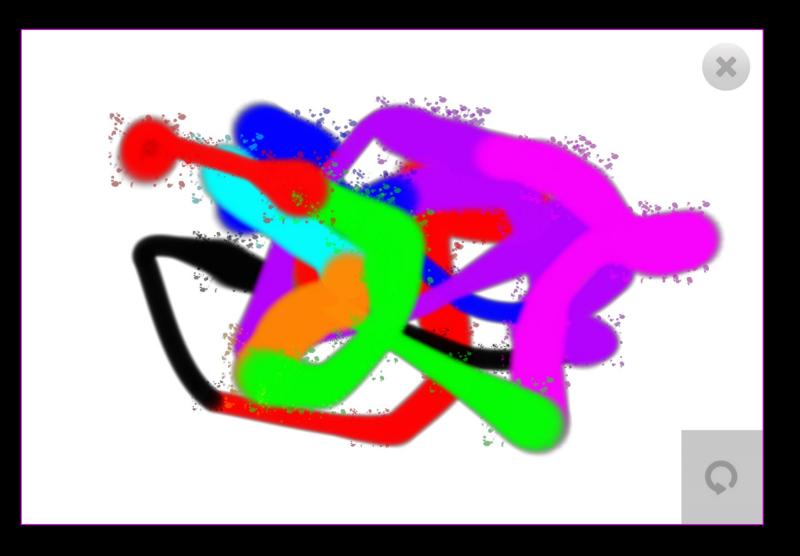


# **Splodge**

Splodge is a fun painting activity where colours change automatically as the user looks around the screen. Select colours in settings, add backgrounds or a paint mask to paint inside the lines.

Press "p" key to take a screenshot.

As well as providing colourful artworks, splodge also provides a visual map of the areas of the screen the user can access which can be helpful for assessment purposes. Splodge also benefits from a clear screen button located bottom right of the screen allowing the user to trigger the clear screen function using a dwell click.



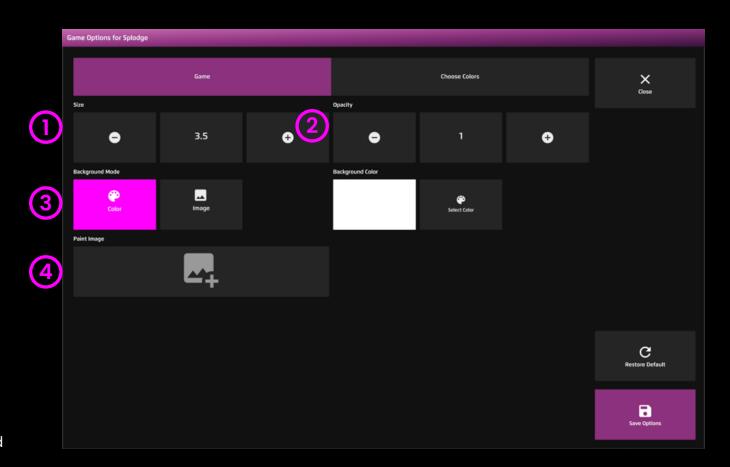




# Splodge - Game Options

- Size Adjust the size of the paint brush. You can choose between 1 9 in increments of 0.5. Default = 3.5
- Opacity Adjust the opacity of the paint between 0 1. Default = 1 (opaque).
- **Background Mode** Change the background selecting from the following:
  - colour set background colour from colour picker window
  - 2. Image Add background image from media library or upload your own. Supports .jpg and .png formats.
- Paint Image Add an image to turn Splodge into a colouring in activity. Select from media library or upload your own.

NB: Image must be a 1920 x 1080 PNG with transparency to work as a colouring in activity.





# Splodge - colour Options

colour 1 - 9 - Customise the colours of the paint trails by selecting colours from the select colour options.

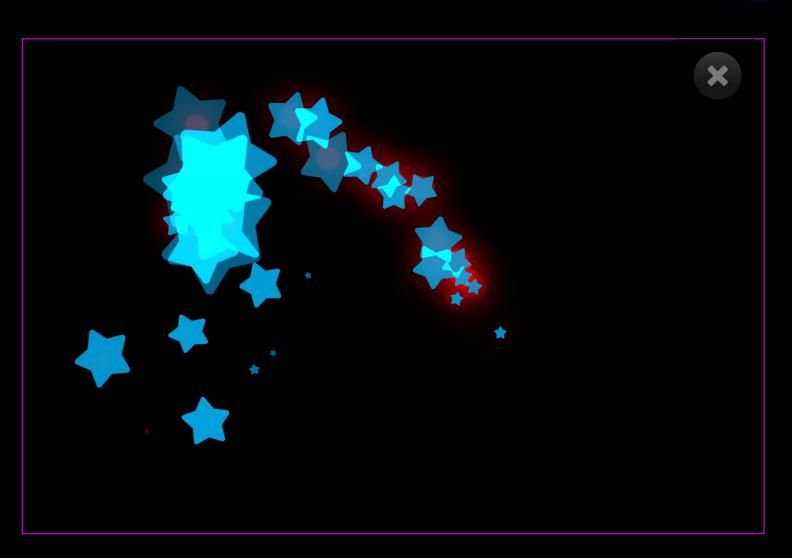




## **Star Trails**

Blue stars scatter around the screen in response to eye movements. Musical sounds play when the eyes are moving and stop when gaze is diverted..

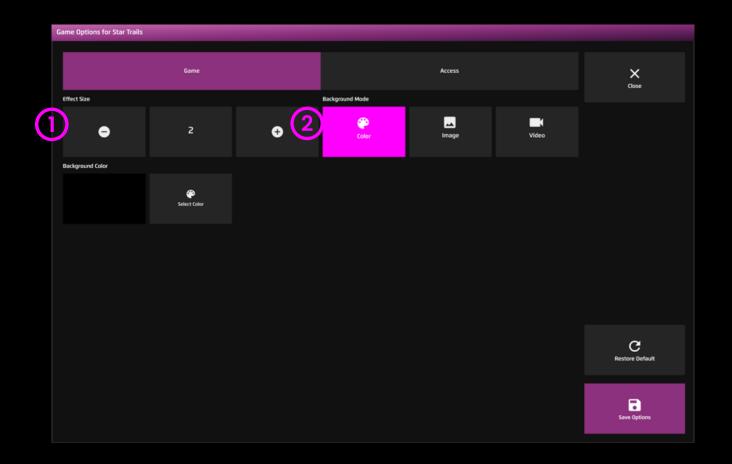
The off-centre spinning effect helps to draw the eyes into different areas of the screen. Effect size and background can be edited in setting options





# Star Trails - Game Options

- Effect Size Adjust the effect size. A stimulus size between 1 9 can be selected in increments of 0.5. Default = 2.
- **Background Mode** Change the background selecting from the following:
  - colour set background colour from colour picker window. (Default = black)
  - Image Add background image from media library or upload your own. Supports .jpg and .png formats.
  - 3. Video Add video from media library or upload your own. Supports .mp4 file formats





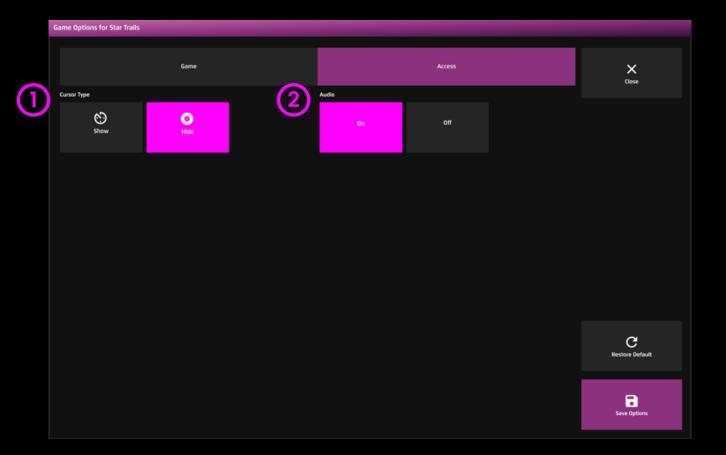
# **Star Trails - Access Options**

Cursor Type – Select whether to show or hide cursor.

Default = Hide.

**Audio** – Star Tails makes a twinkling sound as the effect travels across the <u>screen</u>.

Turn audio on/off. Default = On







# **Moving Snake**

Moving Snake is a high contrast effect that creates a trail of colourful circles that follow the user's gaze path. A soundtrack plays while the eyes are moving and stops when the trail catches up to the cursor.

Effect size, speed, background image and soundtrack can be edited in options. Rapid saccades will make the snake zip all over the screen. Can you keep the cursor still long enough to make the sound stop?



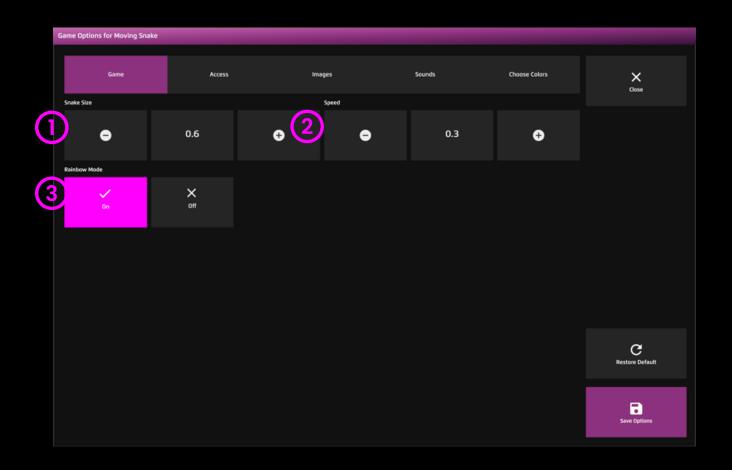




# Moving Snake - Game Options

- Snake Size Adjust the size of the snake. Set snake size between 0.1 1 in increments of 0.1.

  Default = 0.6.
- 2 Speed Adjust the speed that the tail of the snake meets the head. Select from within a range of 0 1, with 1 being the fastest. Default = 0.3.
- **Rainbow Mode** Turn rainbow mode on/off. On gives you a rainbow coloured snake, off creates a snake with a wider range of colours. Default = On.







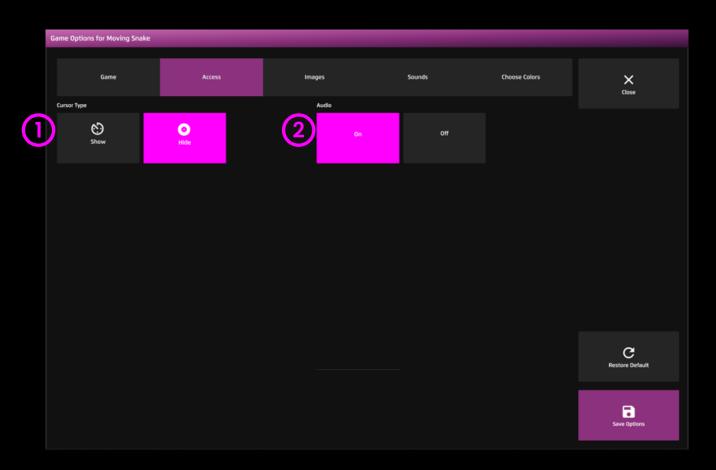
# **Moving Snake - Access Options**

Cursor Type – Select whether to show or hide cursor.

Default = Hide.

2 Audio – Moving Snake makes a retro digital sound as the snake travels across the screen. Stopping when the gaze is off the screen.

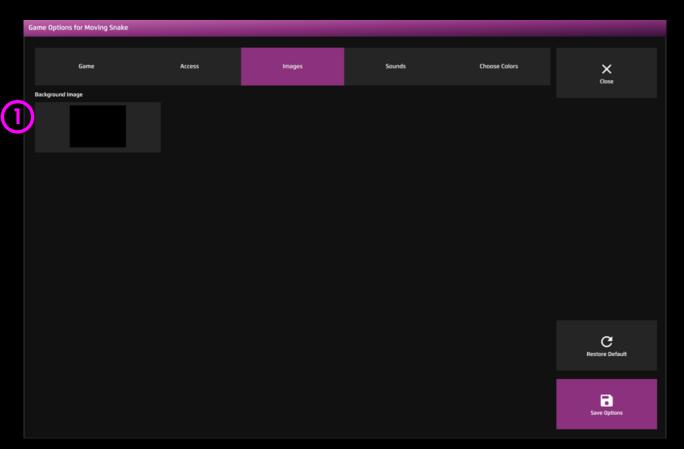
Turn audio on/off. Default = On





# **Moving Snake - Images Options**

Background Image – Add an image you would like to use as your main background. Select from the Sensory Eye FX 2 Media Library or upload your own. Default = None.

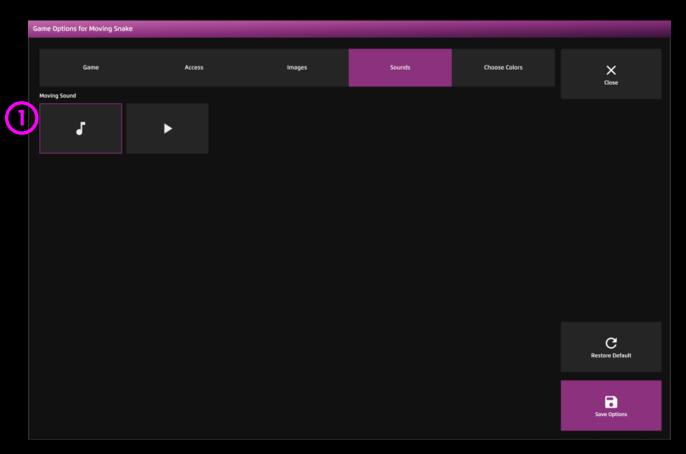




# Moving Snake - Sounds Options

Moving Sound – Add your own sound to the moving snake. Select from the media library of upload your own .mp3 audio file.

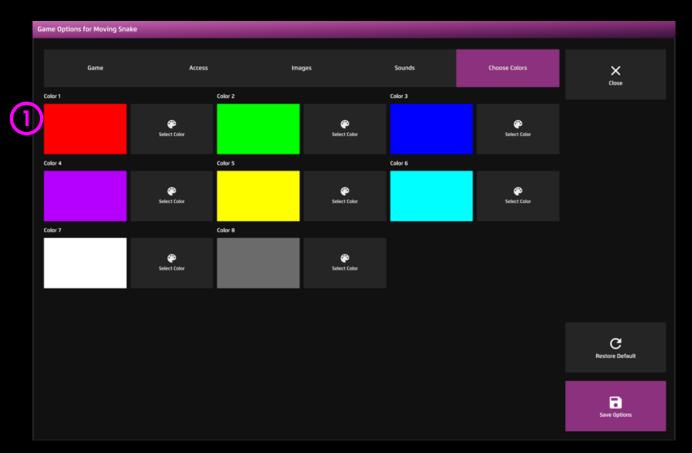
We recommend choosing a looping sound clip.





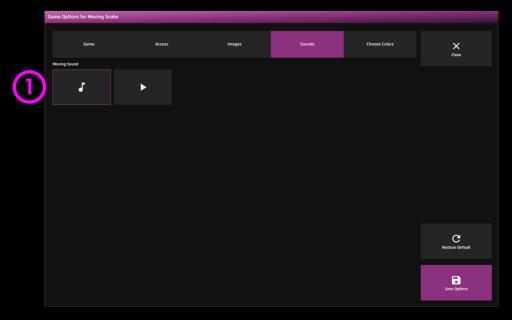
# **Moving Snake - colours Options**

colour 1 - 9 - Customise the colours of the moving snake by selecting colours from the select colour options.



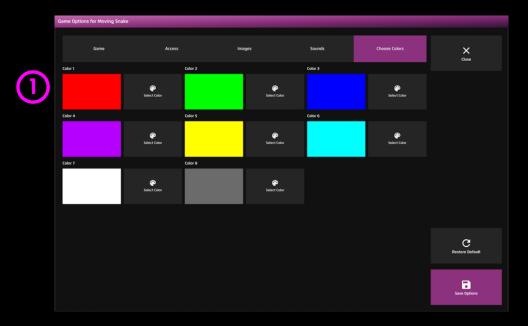


# Moving Snake - Sound + colour Options



Moving Sound – Add your own sound to the moving snake. Select from the media library of upload your own .mp3 audio file.

We recommend choosing a looping sound clip.



colour 1 - 9 - Customise the colours of the moving snake by selecting colours from the select colour options.















Level 2: Gaze Interaction

# LEVEL 2 GAZEINTERACTION

Gaze Interaction activities introduce some of the interaction methods of eye gaze such as dwell activation and targeting. These apps allow users to explore how their gaze can trigger a response from the objects in the screen

## **Level 2: Activities Overview**



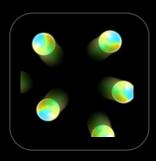












**Hide & Seek** 

**Dwell Bomb** 

**Springy Target** 

Pop

Splat

Scatter

### Target images

Target images appear in fixed or random locations, when the user looks at an image for longer than the set dwell time, animation events will be triggered.

#### Contrast

Target images appear against black background for maximum contrast - interaction area is within the boundary of the image. Dwell activation starts when gaze is on the object.

#### **Dwell**

Dwell Time is variable with up/down arrow keys increasing and decreasing dwell by +-0.1 second increments. This convenience is available in all activities that feature images.

#### Interaction

The images will respond to user interaction. There will be a noticeable change in the image when it has been activated, such as moving, disappearing, or exploding.

## **Anticipation**

It is interesting to observe the way users react to the interaction and the resetting of the image after it has animated. Do they anticipate where an image may reappear? Hover in a certain area of the screen etc?

## **Level 2: Objectives**



**Level 2 objectives** include: helping the user to direct their gaze towards stimuli images, fixing their gaze on a stimulus to activate a dwell interaction, observe the resulting animation, locate stimuli in different locations, keeping eyes still (fixation), exploring different dwell times as required for user to process the stimuli.

#### Locate the targets

Some targets are static some are moving, pay attention to which type the user finds it easier to see. Here are some things you can do to assist the user locate the targets.

#### 1. Gaze cursor

In cursor mode you will see a cursor on the screen showing the users gaze point. This is useful to show where the user is looking and can help to debug calibration offset, whereby the user is looking at the target, but the cursor is some distance away from the target.

#### 2. Increasing stimulus size

Increase the size of the stimuli to make it more prominent on the screen.

NB: the cursor is a stimulus and may distract the user. If this happens experiment with dwell lock mode and hidden cursor in order to focus attention on the object interaction.

#### 3. Change stimulus

Use images that will be motivating to the user based on known preferences.

#### 4. Gaze modes

Change dwell times, change between cursor dwell, dwell lock and gaze switch modes to explore access preferences.

### Fixing gaze, dwelling & processing times

Encourage the user to hold their gaze still over the stimulus, think about the visual processing speed that the user is capable of - if the dwell time is I second but it takes the user 3-4 seconds to process what they are looking at, any selection below this processing threshold cannot be intentional. It is important to explore different dwell times and observe user responses to help assess intentionality. Observe the time that it takes for the user to respond to stimuli that appears in their visual field, as this will indicate processing speeds.



## Hide and Seek

Hide and Seek is a simple targeting activity where a yellow star image appears against a black background – when a user looks at the star it makes a sound, disappears, and reappears again in another area of the screen. The idea is to help the user to become aware that their gaze is producing the effect.

Now is the time for positive verbal encouragement: "where is the star? Can you find it", etc. The mouse cursor is visible to provide a visual reference point as to where the user is looking in relation to the stimulus – this can help you work out if there is a calibration offset to contend with. Up/Down keys to increase or decrease dwell time by +/- 0.1 second. Change stimulus image, background and more in settings.





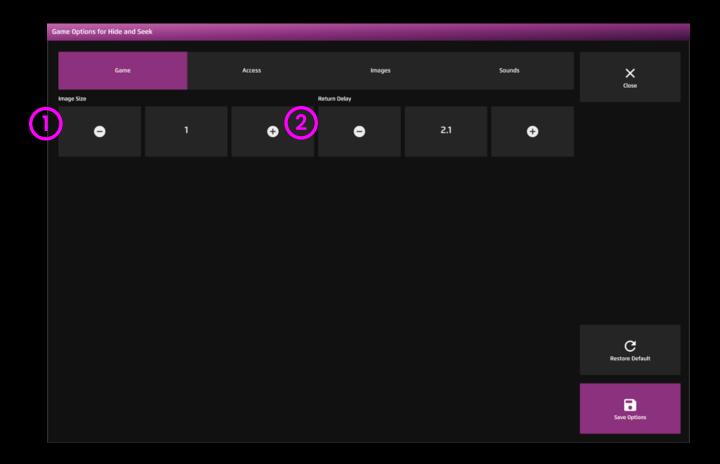


# Hide and Seek - Game Options

- Image Size Choose the size of the stimulus image between 0.1 1 in increments of 0.1.1 is the largest size. Default = 1.
- Return Delay Adjust how long the object reappears after it has been interacted with.

  Select from within a range of 0.2 5 seconds.

  Default = 2.1





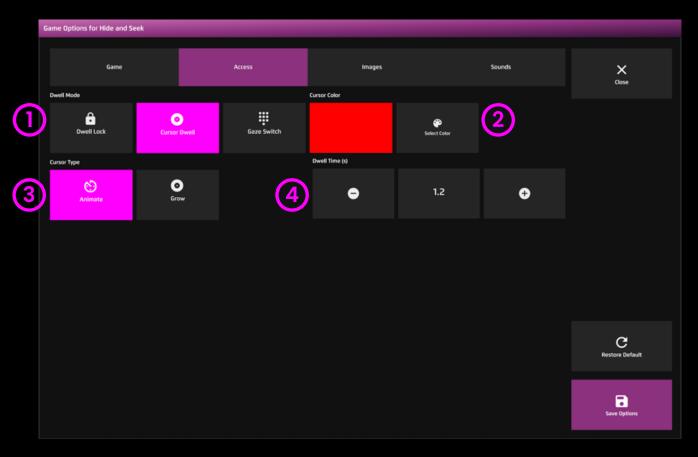
## Hide and Seek - Access Options

- **Dwell Mode** Select from:
  - Dwell Lock Cursor snaps to object when gaze is within proximity of object.
  - 2. Cursor Dwell (default) Cursor moves with gaze and does not snap to object.
  - 3. Gaze Switch Gaze to object and use switch to activate.
- **Cursor colour** Click select colour to customise cursor colour. Default = red
- 3 Cursor Type Select whether to have an animated or growing cursor.

Default = Animate.

**Dwell Time** – Select dwell time from between –0 – 5 seconds in increments of 0.1.

Default = 1.2

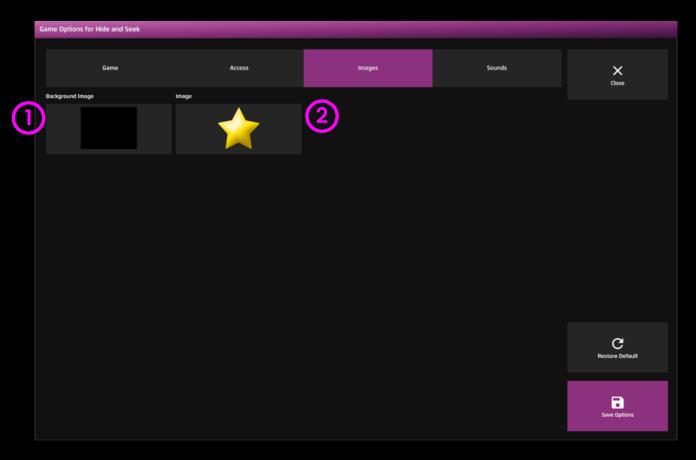




# Hide and Seek - Images Options

- Background Image Add an image you would like to use as your main background. Select from the Sensory Eye FX 2 Media Library or upload your own. Default = None.
- 2 Image Add an image you would like to use as the stimulus object. Select from the Sensory Eye FX 2 Media Library or upload your own.

The image must be a PNG with transparency and sized between 126 x 126 – 512 x 512 pixels.

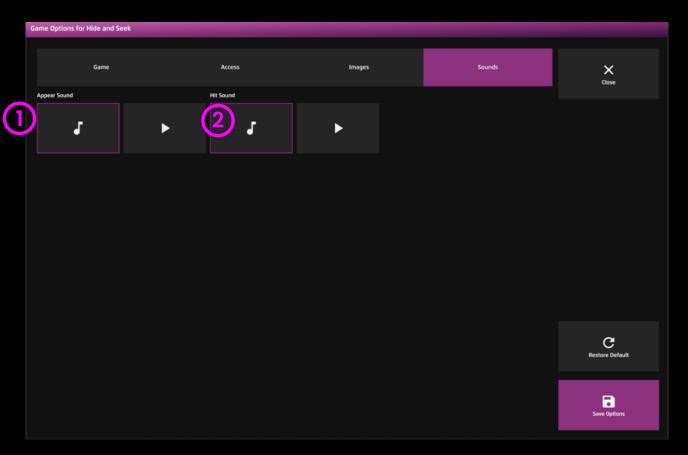




# Hide and Seek - Sounds Options

- Appear Sound Add your own sound to object when it appears in the screen. Select from the media library or upload your own .mp3 audio file.
- Hit Sound Add a sound to the object for when it is hit. Select from the media library or upload your own .mp3 audio file.

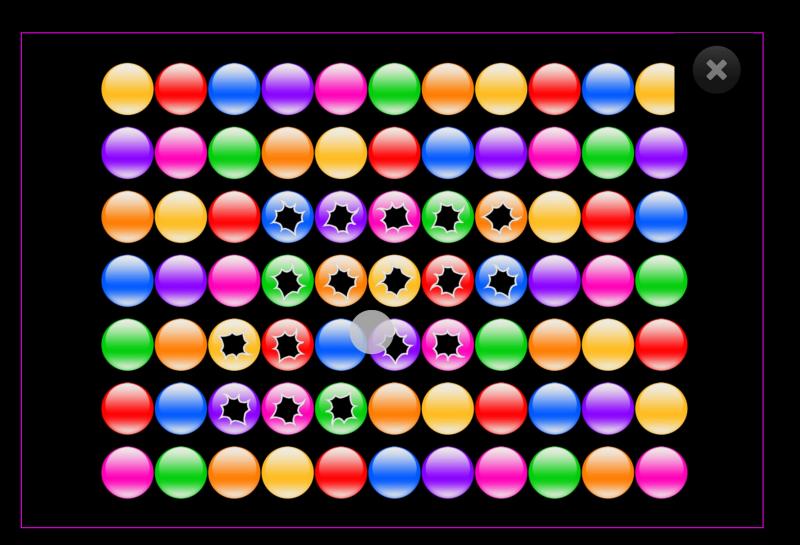
**TIP!** We recommend choosing short sound clip that is below I seconds.





# Pop

Pop presents a series of coloured circles that burst as a user looks around the screen. There is no timer, and the objective is not necessarily to pop every ball before they return. Exploration of the screen should be the main aim. Facilitators need to be looking at the way the eye behaves: does the user move slowly and cluster fixations in a certain area of the screen; do they seem to work to the outer edge of the screen? What we want to see from this app is whether a user can make use of the full screen. Play with dwell times or set 0 for rapid popping.





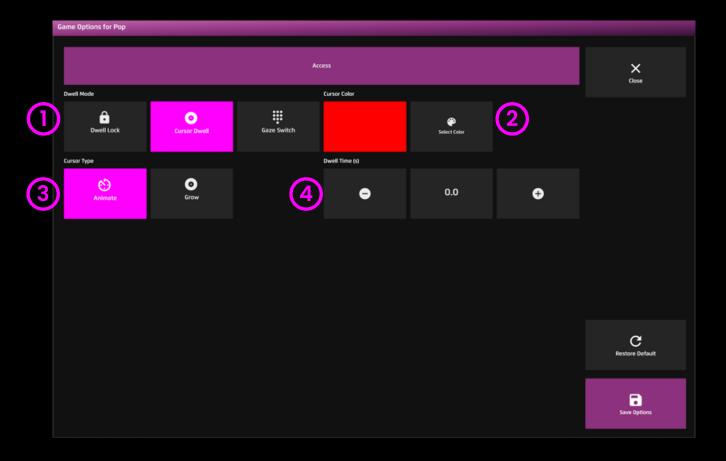
# Pop - Access Options

- Dwell Mode Select from:
  - Dwell Lock Cursor snaps to object when gaze is within proximity of object.
  - 2. Cursor Dwell (default) Cursor moves with gaze and does not snap to object.
  - 3. Gaze Switch Gaze to object and use switch to activate.
- **Cursor colour** Click select colour to customise cursor colour. Default = red
- **Cursor Type** Select whether to have an animated or growing cursor.

Default = Animate.

**Dwell Time** – Select dwell time from between -0 – 5 seconds in increments of 0.1.

Default = 0



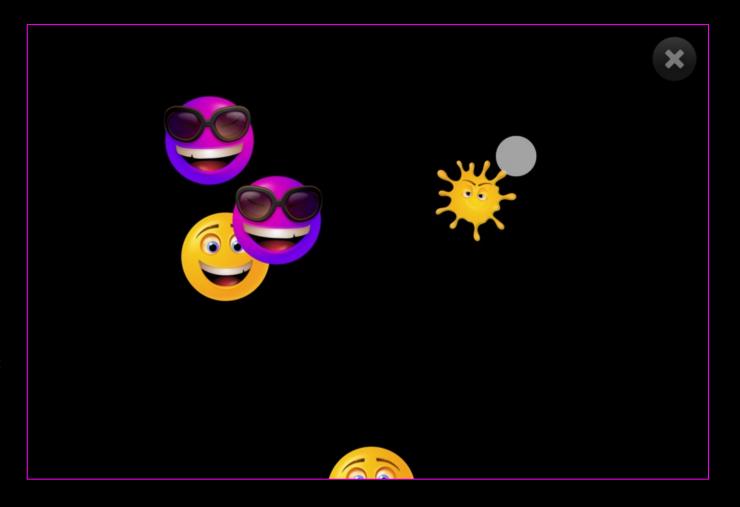




# **Splat**

Smiley faces float around the screen – when a user target's one of the heads it splats and slides down the screen. This animation is accompanied by a squelching sound. Whilst this app is a lot of fun, it is also informative: if a user is squashing heads all over the screen, they are proving an ability to see, track and focus on a moving stimulus – good full screen targeting with Splat indicates that a user can be calibrated (it may be difficult, but it is possible).

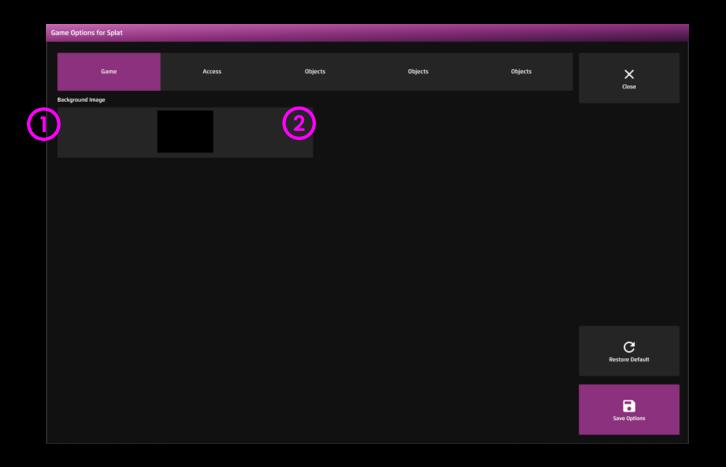
The way a user approaches this application can tell us something about their ability to anticipate, use short term memory and strategize. Maximum effect for minimum effort would be to wait in the centre of the screen and target the faces as they appear from the bottom. Default dwell time is 0.5sec. Up/Down keys to increase or decrease dwell time by +/- 0.1 second. Increase or decrease the number of objects on screen, change background colour, speed, size and more.





# Splat - Game Options

Background Image – Add an image you would like to use as your main background. Select from the Sensory Eye FX 2 Media Library or upload your own. Default = None.





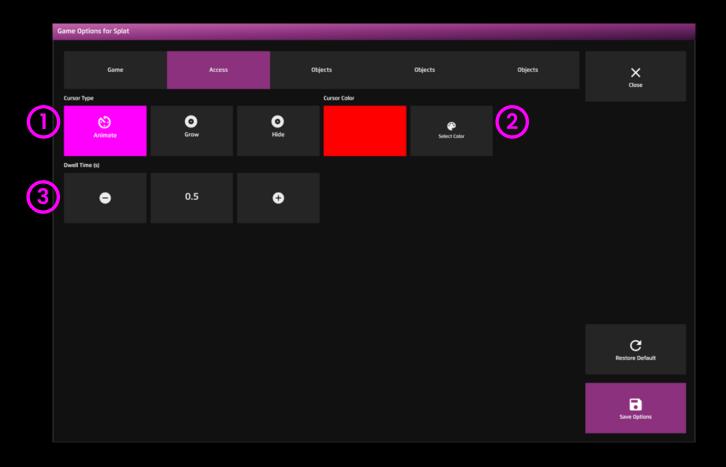


# **Splat - Access Options**

- Cursor Type Select whether to have an animated or growing cursor or to hide it.

  Default = Animate.
- **Cursor colour** Click select colour to customise cursor colour. Default = red
- 3 **Dwell Time** Select dwell time from between -0 5 seconds in increments of 0.1.

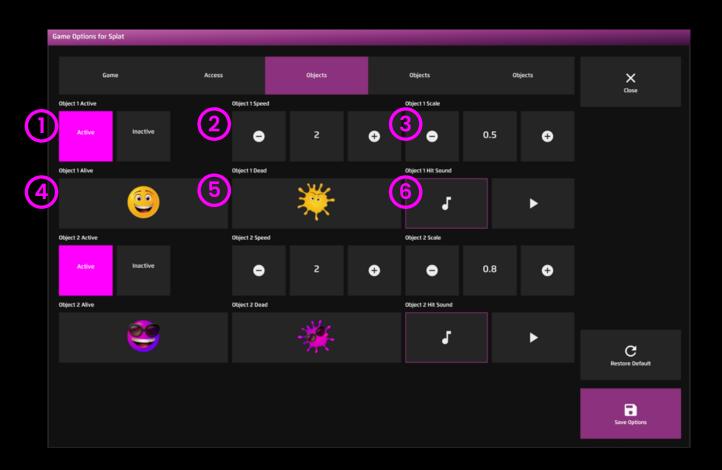
  Default = 0.5





# Splat - Objects Options

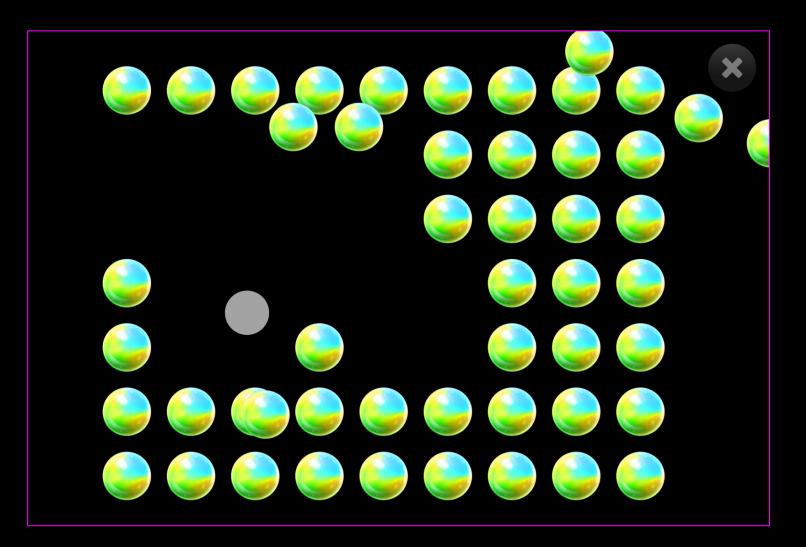
- Active / Inactive Turn an object on/off. This allows you to tailor how many splat objects appear in the game. Default = Active.
- Object Speed Adjust the speed the objects move between 0 5. 0 means that an object will be static and not move. Default = 2
- **Object Scale** Adjust size of object with 0.1 being smallest and 1 being largest. Default = 0.5.
- Object Alive Upload your own stimulus image or select from the media library.
- **Object Dead** Upload your own splat image or select from the media library.
- **6 Object Hit Sound** Upload your own mp3 splat sound or select from the media library.





## **Scatter**

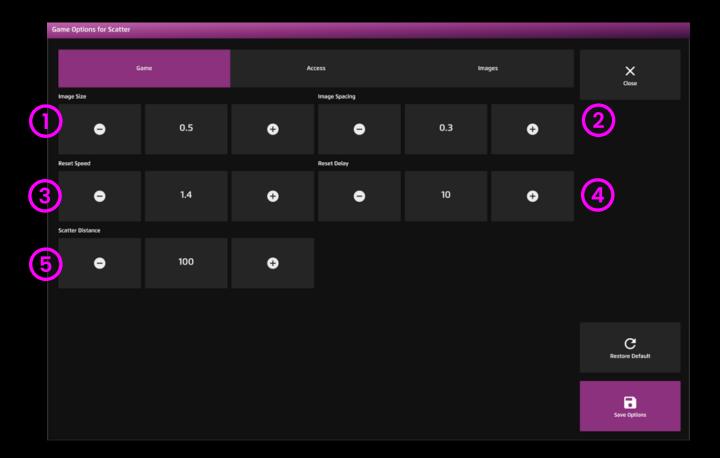
Balls are arranged in rows covering the full screen. As the user looks around the screen a gravity force is applied making the balls move away from the area of fixation. The localised ball motion can be useful for helping users understand cause and effect and to prompt exploration of the wider screen. Ball movement is accompanied by a subtle collision sound. Change stimulus, background and more in settings.





## Scatter - Game Options

- Image Size Choose the size of the stimulus image between 0.1 1 in increments of 0.1.1 is the largest size. Default = 1.
- Image Spacing Define the size of gaps between the scatter objects. Select from a range of 0.1 - 1. Default = 0.3
- Reset Speed The object motion speed. Adjust how fast an object moves between 0.2 10 seconds. Default = 1.4 seconds.
- Reset Delay How long before an object returns to its original position. Adjust delay between 0.2 10 seconds. Default = 10
- Scatter Distance How far an object moves
  when gazed over. Adjust scatter distance
  between 10 100 (furthest distance) Default =
  100



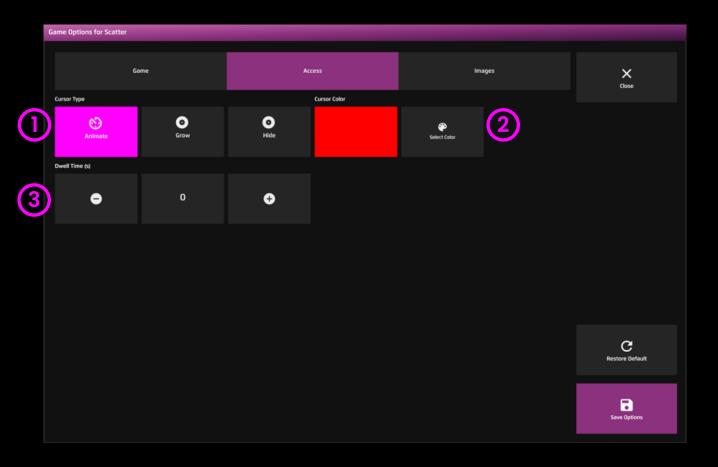


# Scatter - Access Options

- Cursor Type Select whether to have an animated or growing cursor or to hide it.

  Default = Animate.
- **Cursor colour** Click select colour to customise cursor colour. Default = red
- 3 **Dwell Time** Select dwell time from between –0 5 seconds in increments of 0.1.

  Default = 0.5

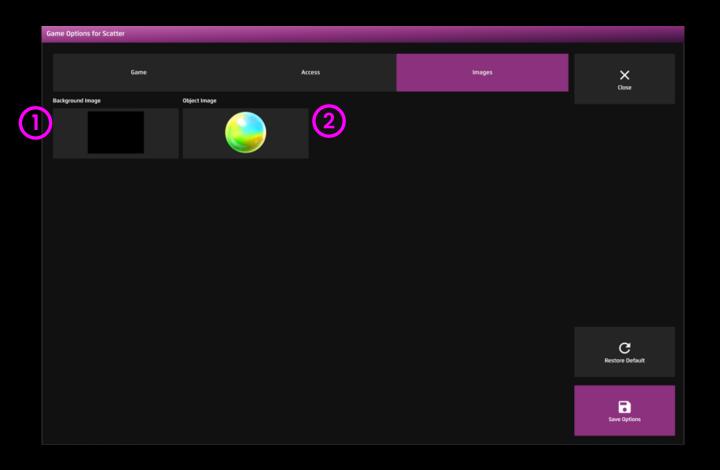




# Scatter - Images Options

- Background Image Add an image you would like to use as your main background. Select from the Sensory Eye FX 2 Media Library or upload your own. Default = None.
- 2 Object Image Add an image you would like to use as the stimulus object. Select from the Sensory Eye FX 2 Media Library or upload your own.

The image must be a PNG with transparency and sized between 126 x 126 – 512 x 512 pixels.

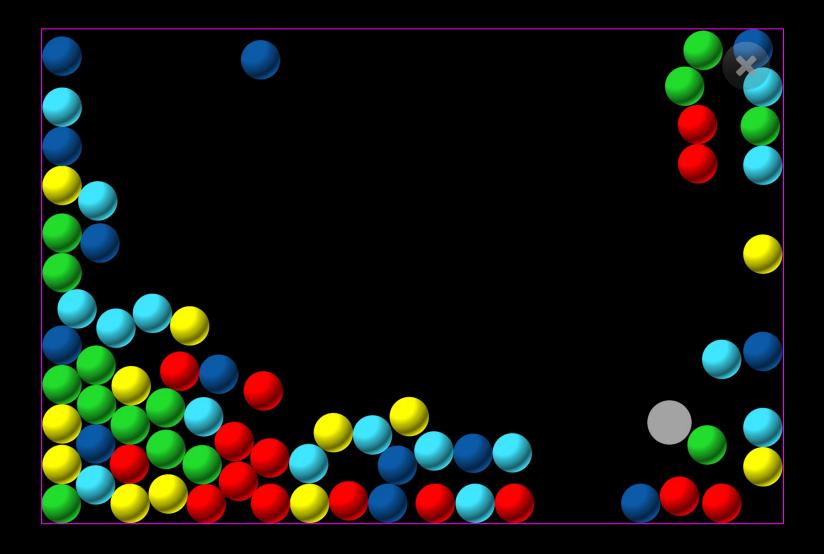






## **Dwell Bomb**

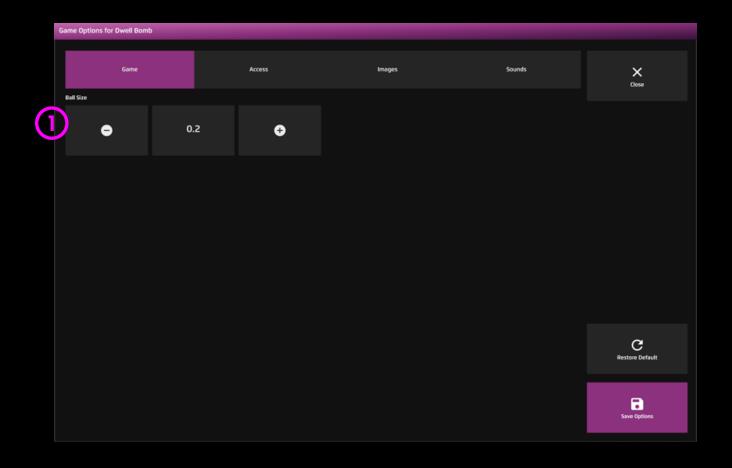
Dwell Bomb is a simple cause and effect activity that activates an explosion of coloured balls when the user fixes their gaze in any area of the screen for the chosen dwell duration. Up and Down arrow keys allow the dwell time to be increased and decreased by 0.1 second time increments. Stimulus size, sound and background can be edited in options.





# **Dwell Bomb - Game Options**

Ball Size – Adjust the size of the balls, select between 0.1 – 1 in increments of 0.1. 1 is the largest size. Default = 0.2





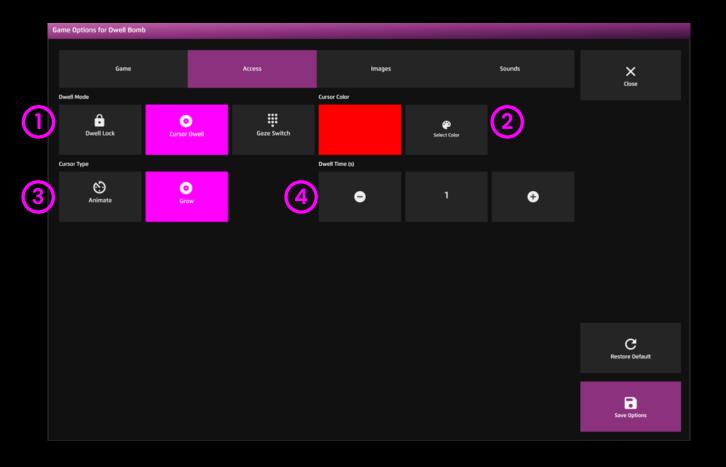
## **Dwell Bomb - Access Options**

- Dwell Mode Select from:
  - Dwell Lock Cursor snaps to object when gaze is within proximity of object.
  - 2. Cursor Dwell (default) Cursor moves with gaze and does not snap to object.
  - 3. Gaze Switch Gaze to object and use switch to activate.
- Cursor colour Click select colour to customise cursor colour. Default = red
- 3 Cursor Type Select whether to have an animated or growing cursor.

Default = Animate.

**Dwell Time** – Select dwell time from between -0 – 5 seconds in increments of 0.1.

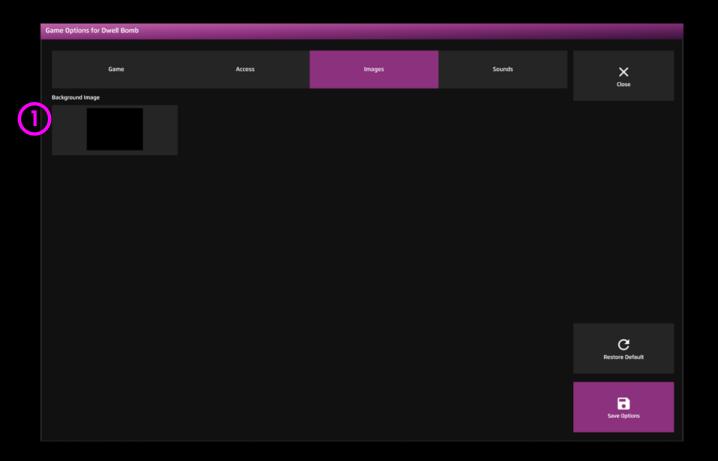
Default = 1 second





# Dwell Bomb - Images Options

Background Image – Add an image you would like to use as your main background. Select from the Sensory Eye FX 2 Media Library or upload your own. Default = None.



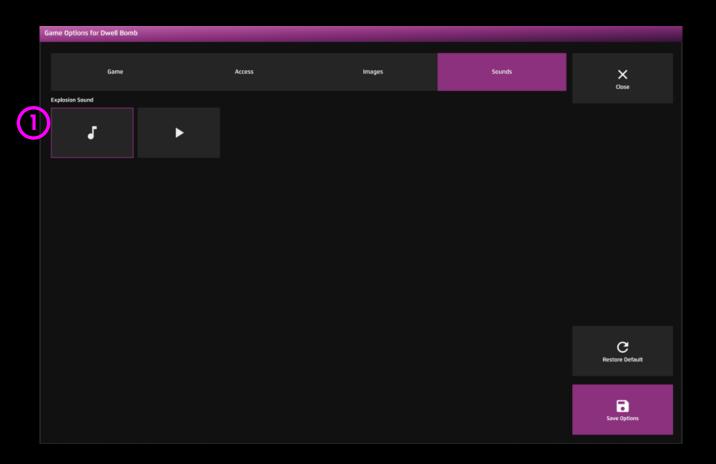


# **Dwell Bomb - Sounds Options**

Explosion Sound – Add your own explosion sound for when the gaze bomb is activated.

Select from the media library or upload your own .mp3 audio file.

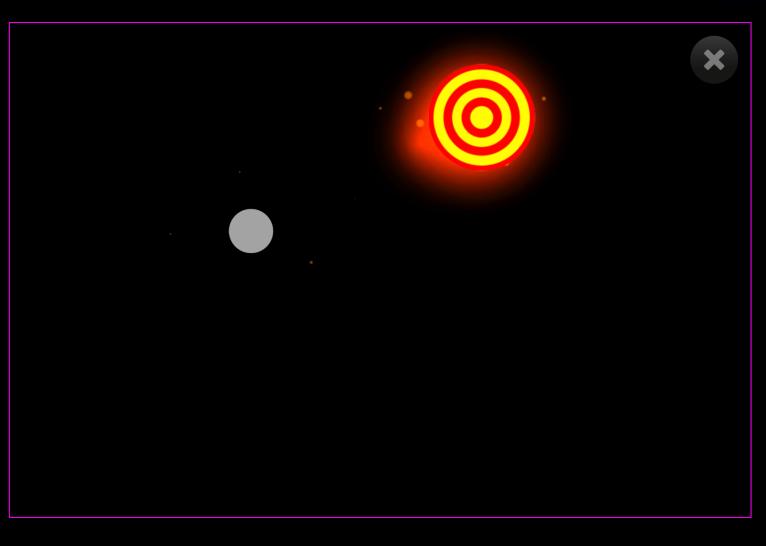
**TIP!** We recommend choosing a short sound clip that is below 2 seconds.





# **Springy Target**

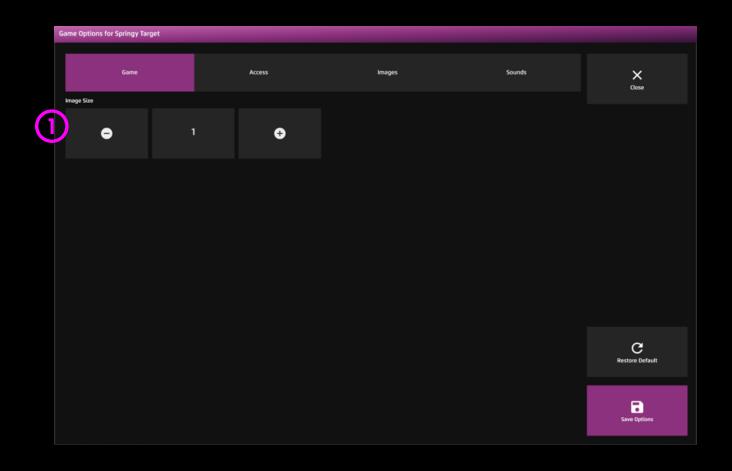
Springy Target is designed to get the user to follow the target as it randomises to different areas of the screen. Before the object comes to a stop it quickly springs back and forth to stimulate the user to look at it in its new location. If a user is hitting the stimulus rapidly all over the screen, they are demonstrating to you that they can see and react to a rapidly moving visual stimulus and target effectively. Now it is time to attempt a calibration. Users that struggle with this type of targeting but demonstrate ability with Level 1 activities should be observed closely - pay attention to the gaze cursor's proximity to the stimulus. Up/Down arrow keys allow the dwell time to be increased and decreased by +/- 0.1. Stimulus image, size, sound, and background can be edited in options.





# Springy Target - Game Options

Image Size – Adjust the size of the target, select between 0.1 – 1 in increments of 0.1. 1 is the largest size. Default = 1





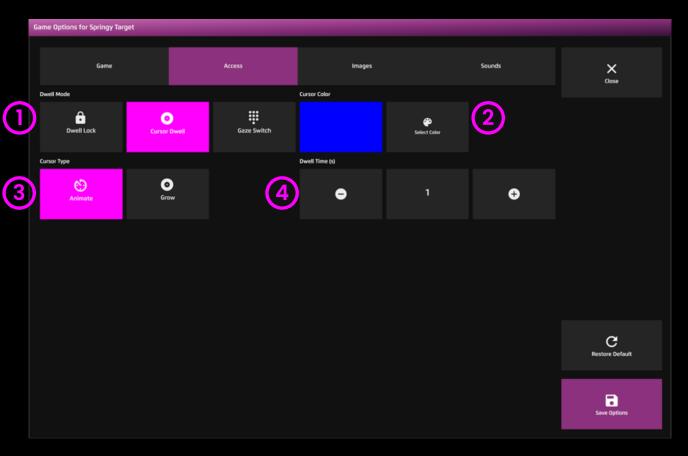
## Springy Target - Access Options

- Dwell Mode Select from:
  - Dwell Lock Cursor snaps to object when gaze is within proximity of object.
  - 2. Cursor Dwell (default) Cursor moves with gaze and does not snap to object.
  - 3. Gaze Switch Gaze to object and use switch to activate.
- **Cursor colour** Click select colour to customise cursor colour. Default = blue.
- **3** Cursor Type Select whether to have an animated or growing cursor.

Default = Animate.

**Dwell Time** – Select dwell time from between -0 – 5 seconds in increments of 0.1.

Default = 1 second

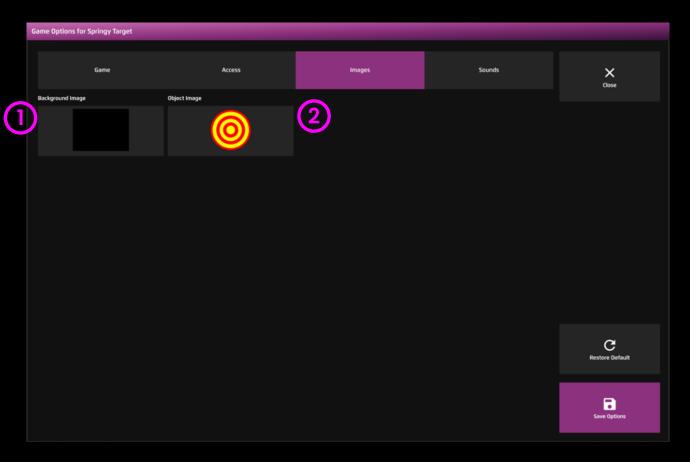




## Springy Target - Images Options

- Background Image Add an image you would like to use as your main background. Select from the Sensory Eye FX 2 Media Library or upload your own. Default = None.
- Image Add an image you would like to use as the target object. Select from the Sensory Eye FX 2 Media Library or upload your own.

The image must be a PNG with transparency and sized between 126 x 126 – 512 x 512 pixels.

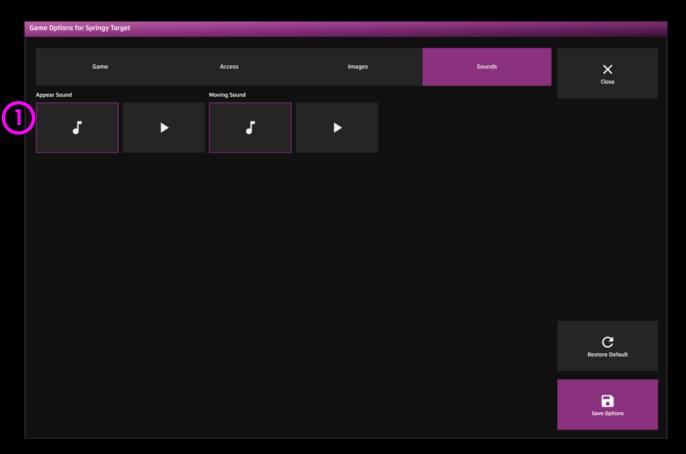




# Springy Target - Sounds Options

- Appear Sound Add your own sound for when the target appears on the screen. Select from the media library or upload your own .mp3 audio file.
- Moving Sound Add your own sound for when the target moves across the screen after it has been activated. Select from the media library or upload your own .mp3 audio file.

**TIP!** We recommend choosing a short sound clip that is below 1 seconds.

















Level 3: Gaze Regions

# LEVEL 3 GAZE REGIONS

Gaze Region activities stimulate visual attention by encouraging users to target specific areas of the screen to improve gaze control skills. Level 3 activities help to develop the targeting and attention skills necessary to achieve a robust calibration.

#### **Level 3: Activities Overview**















Whack

colours

Torch

Lights

**Static Target** 

Farm

#### Visual search and building persistence

Encourage users to search for specific images, target them and move to the next. We want to promote screen wide coverage where possible.

#### **Reaction times**

Observing reaction times in activities like Whack and Static Target can tell us quite a bit about a users visual processing speed. Encourage fast response where possible and use prompts to cue search.

#### **Dwell Times**

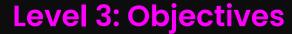
Decreasing the dwell times can be helpful if accuracy is not yet locked in. Increasing the dwell time is a good way to encourage longer looking at specific images like the animals in farm etc.

#### **Develop Understanding**

Encourage users to look for certain image properties like colour, object type etc. Swap out images in Static Target to create simple games like odd one out, matching, and grouping by type etc.

#### Searching

Torch has the option to add any background image. This feature can be used to explore visual search and memory. Take images of scenes a user is likely to have experience and explore the scene with them.





**Level 3 objectives** include: using visual search to locate and target stimuli, widening exploration of the screen, observe on/off dwell control in Lights activity, helping users to make sense of visual information and develop communication skills with joint attention.

#### **Developing looking skills**

It is important to develop users looking and visual discrimination skills with a range of different visual content. The ability to determine differences and similarities between objects helps us to understand and interpret the environment around us.

#### 1. Prompts & cues

Verbal prompts and physical gesture cues can be useful in helping users to locate images and shift attention to areas of interest.

#### 2. Assist with motivation

Select different images that are likely to be motivating. Premade content is a start but getting to what interests the user is essential.

#### 3. Joint attention

Joint engagement happens when a user and facilitator interact with the same object over a period of back and forth turns. Encourage turn taking and focusing on the same object.

- Take back-and-forth turns
- Shift gaze between object and facilitator
- Follow instructions
- · Interact for longer periods of time
- · Have fun while exploring

#### **Visual Discrimination**

In Sensory Eye FX 2 it is possible to explore visual discrimination in many of the activities across the levels by adding your own images and changing some of the parameters. The scope for customization of activities to help develop visual skills is limitless. Thinking in terms of learning objective like matching, spotting differences and so on is very useful. The media library has a range of image assets you can use as you experiment



## Whack

Whack is based on the game whacka-mole only we have done away with the timer and score counter. This activity is great for developing quick targeting skills and can also be used to help users identify colours. Change modes, number of whack targets and more in settings.





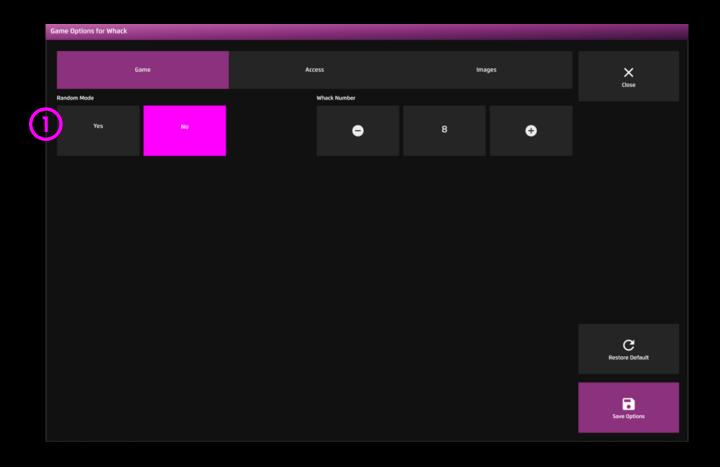
## Whack - Game Options

Random Mode -

Yes - some whack objects will not be

No – all whack objects are...

Whack Number – Increase/decrease how many whack objects appear. Select between 1 – 12. Default = 8

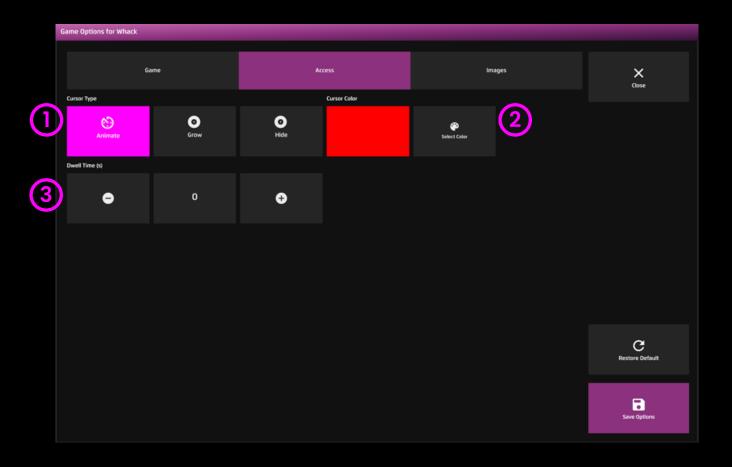




## Whack - Access Options

- Cursor Type Select whether to have an animated or growing cursor or to hide it.

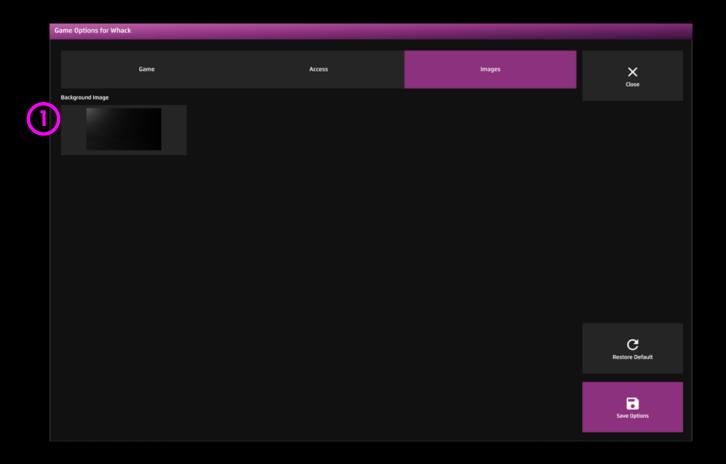
  Default = Animate.
- **Cursor colour** Click select colour to customise cursor colour. Default = red
- 3 **Dwell Time** Select dwell time from between -0 5 seconds in increments of 0.1. Default = 0.5





# Whack - Images Options

Background Image – Add an image you would like to use as your main background. Select from the Sensory Eye FX 2 Media Library or upload your own. Default = None.



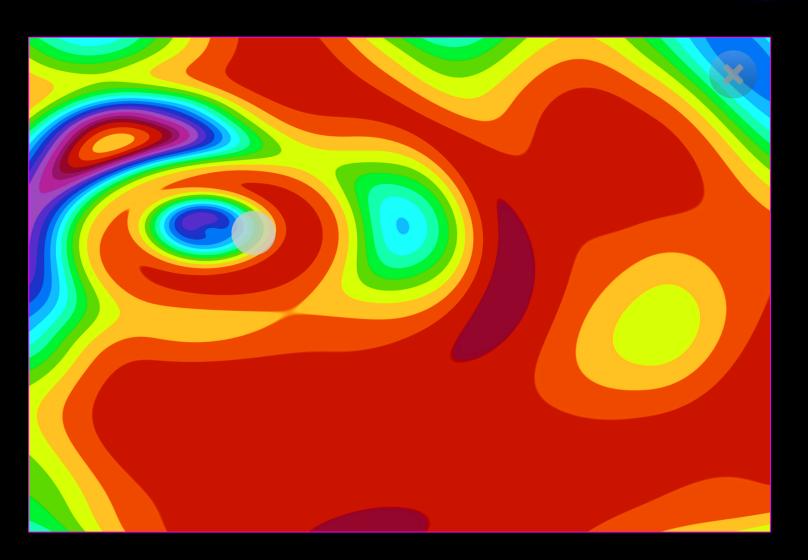




#### colours

colours allows the user to create mesmerising-coloured patters as they look around the screen. Can they find which locations make red, green, and blue most prominent?

Press "P" Key to take a screenshot! This application can be interesting for exploring screen access regions and for determining a user's ability to perceive and understand colour. Verbal reinforcement of what is occurring onscreen can be helpful.

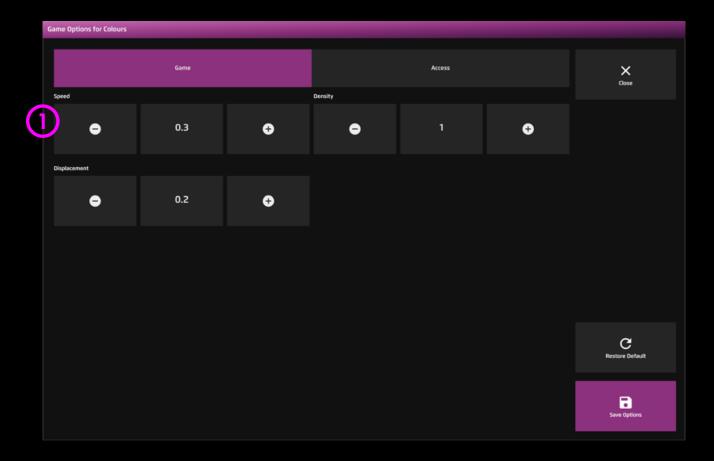






# colours - Game Options

- Speed Adjust the speed of the colour morphs between 0.1 1 (fastest). Default = 0.3
- **Density** Increase/decrease the amount of coloured rings between 1 5. Default = 1.
- Displacement The velocity of colour change as gaze explores the screen. Select between 0.1 1. 0.1 creates a more gradual colour change, 1 creates a bigger colour change. Default = 0.2

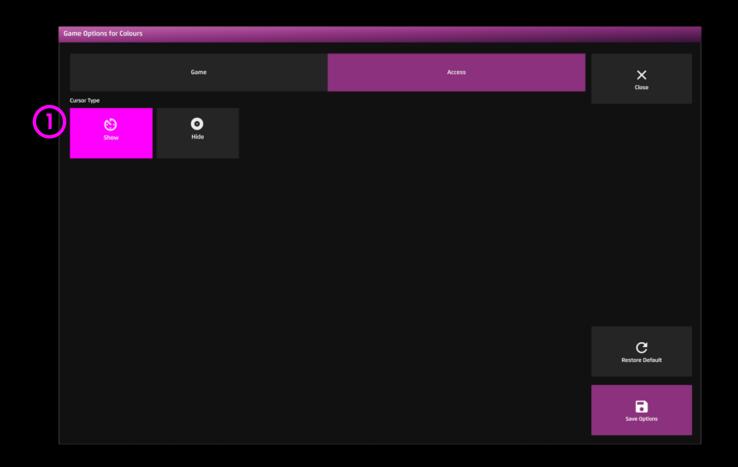




# **colours - Access Options**

Cursor Type – Select whether to show or hide the cursor.

Default = show.







#### **Torch**

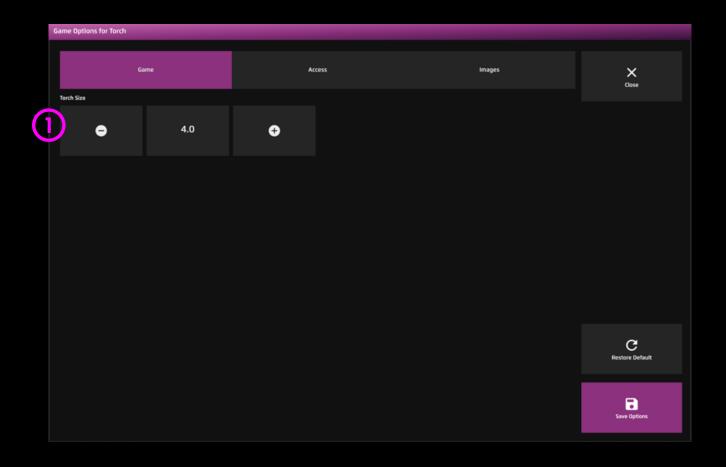
A torch light shines through a black foreground revealing a night-time scene. As the user searches around the screen, different images come into view. Can you find the owl? This activity is great for exploring a user's ability to recognise and recall the location of objects in the scene. Add your own background images to explore visual search in other scenarios.





## Torch - Game Options

Torch Size – Adjust the size of the torch and how large an area that it reveal. Select from 0.2 – 5 in increments of 0.2. Default = 2.

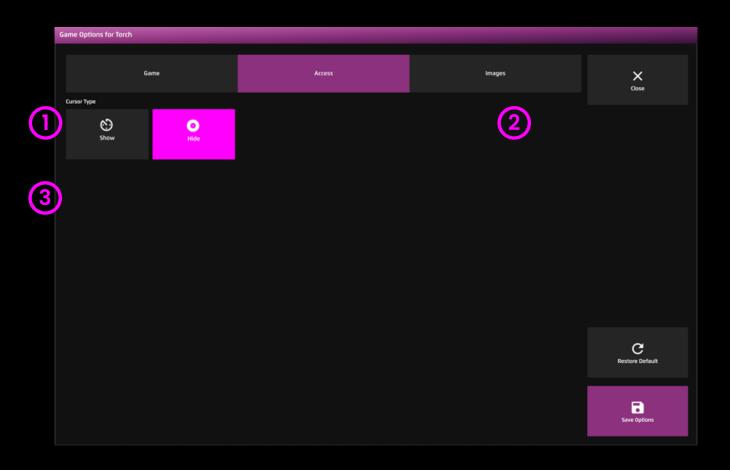




## **Torch - Access Options**

Cursor Type – Select whether to show or hide the cursor.

Default = Hide.

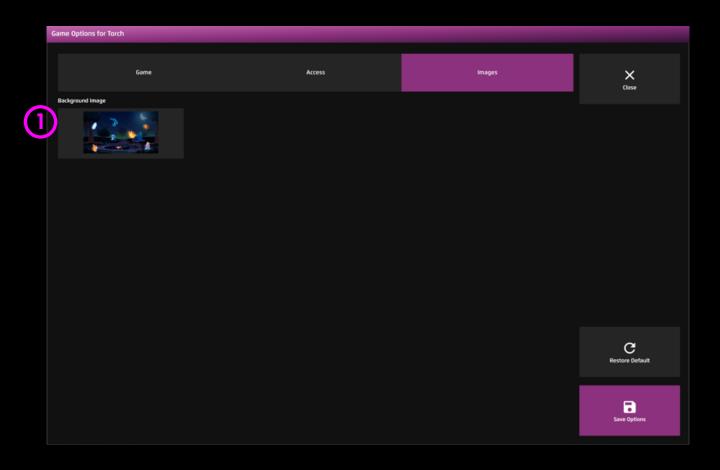




## **Torch - Images Options**

Background Image – Add an image you would like to use as your torch background. Select from the Sensory Eye FX 2 Media Library or upload your own.

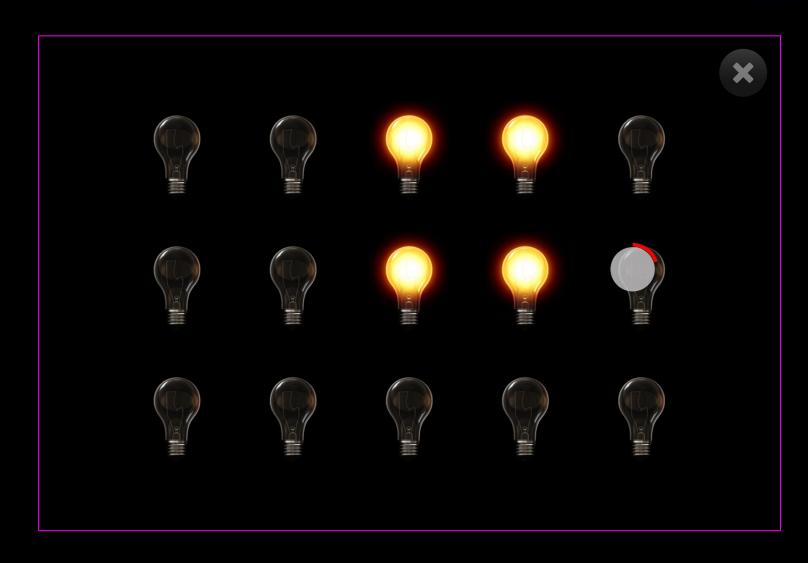
**TIP!** Select an image with a range of objects that can be explored and discovered with the gaze torch.





# Lights

Lights illuminate and trigger a musical note when activated. The lights produce different music tones and allow users to create a range of melodic phrases. The idea is to see if a user can access all regions of the screen. Can you turn the light bulbs on/off all over the screen? Default dwell time is lsec. Up/Down keys to increase or decrease dwell time by +/- 0.1 second.





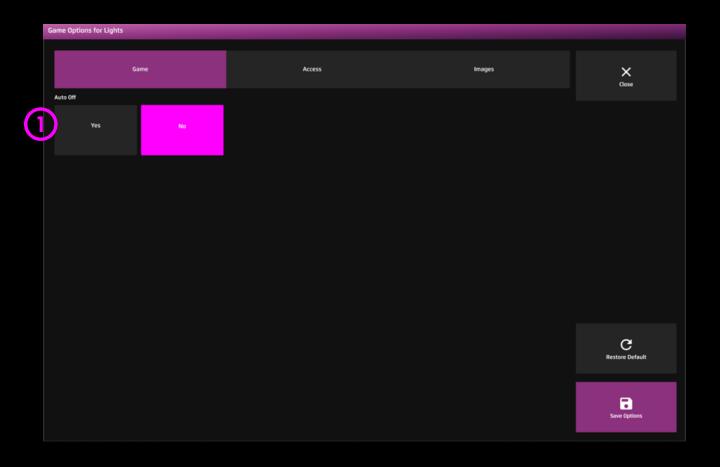
# **Lights - Game Options**

#### 1 Auto Off

**Yes** – Light turns off after a number of seconds.

When selected, option appears for increasing / decreasing number of seconds for light to turn off.

**No** (default) – Light stays on after it has been selected.







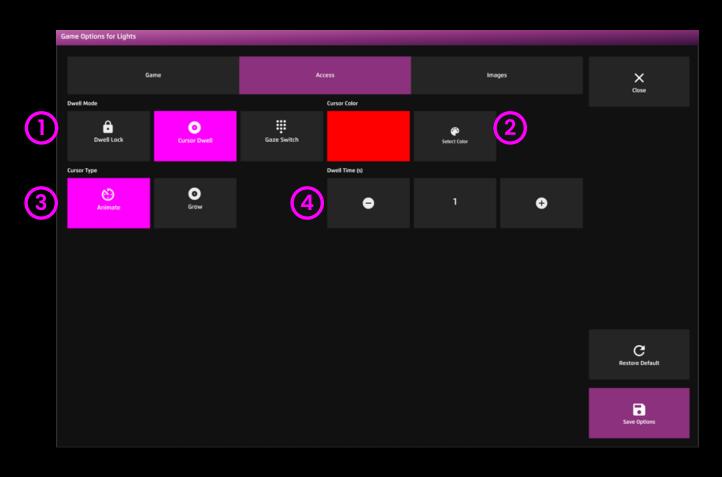
## **Lights - Access Options**

- Dwell Mode Select from:
  - Dwell Lock Cursor snaps to object when gaze is within proximity of object.
  - 2. Cursor Dwell (default) Cursor moves with gaze and does not snap to object.
  - 3. Gaze Switch Gaze to object and use switch to activate.
- **Cursor colour** Click select colour to customise cursor colour. Default = red.
- **3 Cursor Type** Select whether to have an animated or growing cursor.

Default = Animate.

**Dwell Time** – Select dwell time from between -0 – 5 seconds in increments of 0.1.

Default = 1 second







## Lights - Images Options

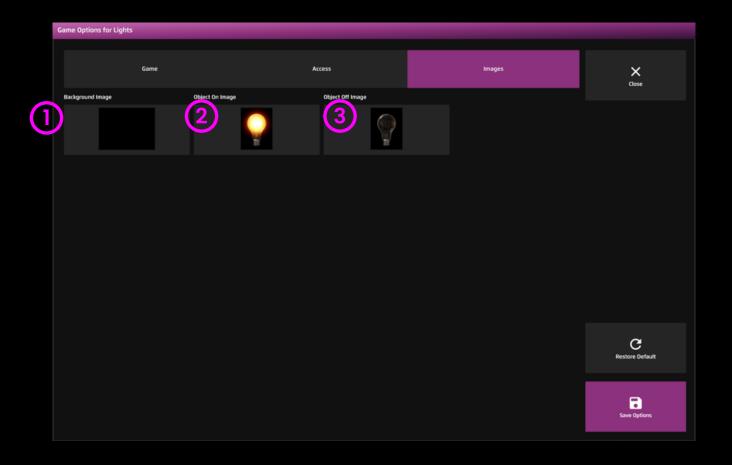
- Background Image Add an image you would like to use as your main background. Select from the Sensory Eye FX 2 Media Library or upload your own. Default = None.
- Object On Image Add an image you would like to be activated when interacted with.

  Select from the Sensory Eye FX 2 Media Library or upload your own.

The image must be a PNG with transparency and sized between 126 x 126 – 512 x 512 pixels.

Object Off Image – Add an image you would like to have as the off state. Select from the Sensory Eye FX 2 Media Library or upload your own.

The image must be a PNG with transparency and sized between 126 x 126 – 512 x 512 pixels.

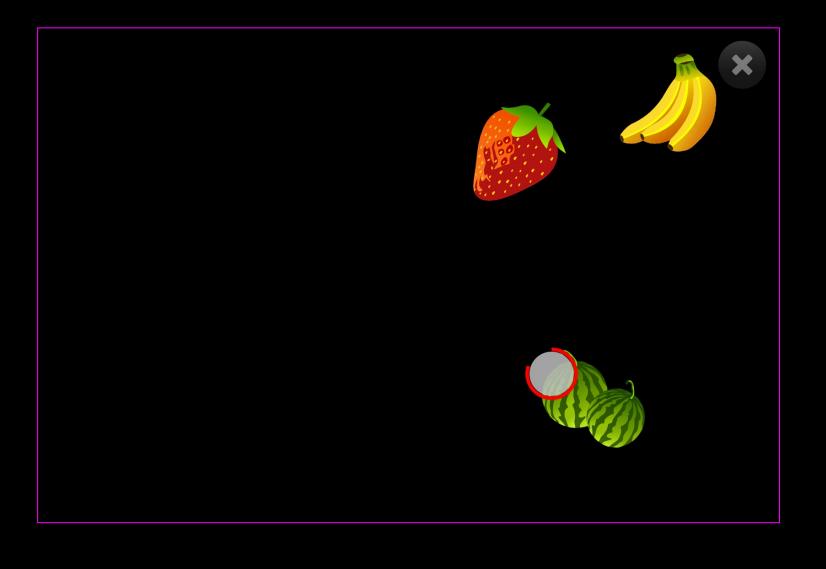




## **Static Target**

Static Target starts with a single target image on the screen. When the user looks at the image it disappears and incrementally randomises 4 additional targets across the screen with a 0.5 second delay – a sound is tied in to reinforce the appearance and targeting of each image. We now want users to develop fixation shifting skills – something appears in our visual field, and we shift our gaze immediately to the stimulus.

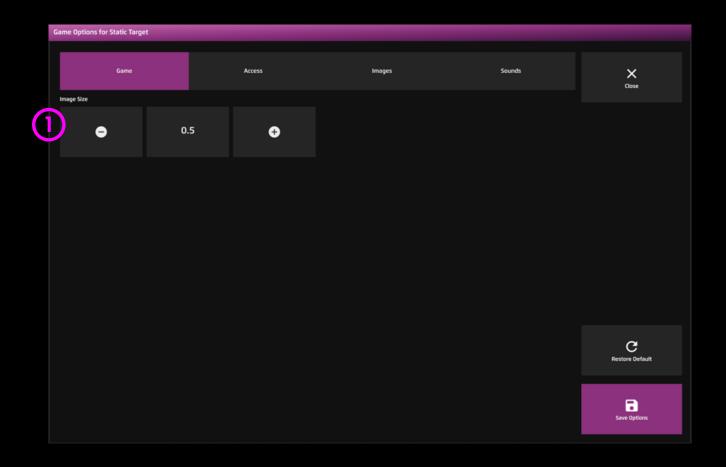
Change the stimuli, background and more in settings. Up/Down keys to increase or decrease dwell time by +/- 0.1 second.





# **Static Target - Game Options**

1 Image Size – Adjust the size of the target, select between 0.1 – 1 in increments of 0.1. 1 is the largest size. Default = 0.5







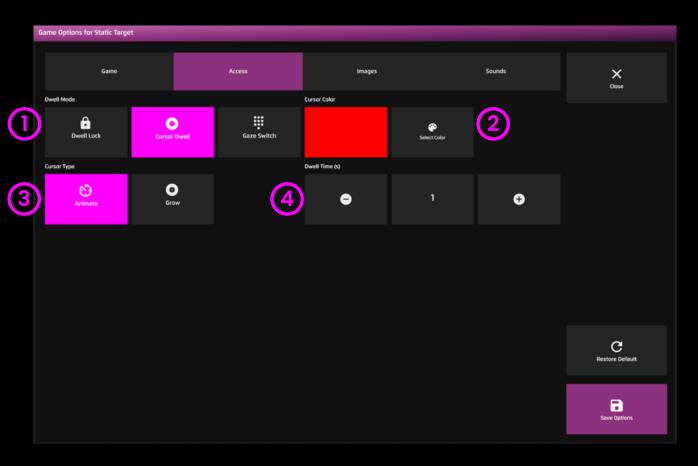
## **Static Target - Access Options**

- **Dwell Mode** Select from:
  - Dwell Lock Cursor snaps to object when gaze is within proximity of object.
  - 2. Cursor Dwell (default) Cursor moves with gaze and does not snap to object.
  - 3. Gaze Switch Gaze to object and use switch to activate.
- **Cursor colour** Click select colour to customise cursor colour. Default = red.
- 3 Cursor Type Select whether to have an animated or growing cursor.

Default = Animate.

**Dwell Time** – Select dwell time from between -0 – 5 seconds in increments of 0.1.

Default = 1 second

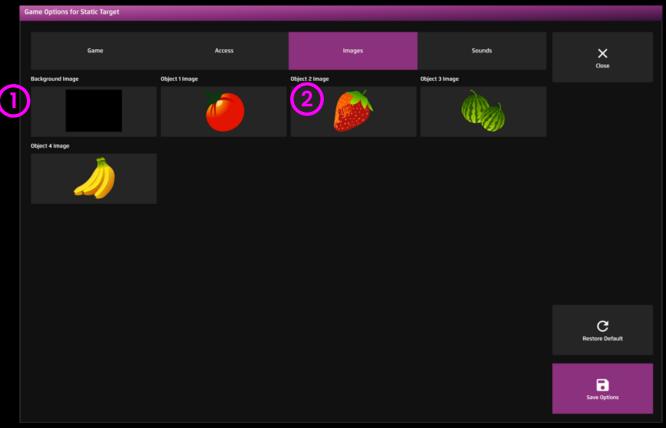




## Static Target - Images Options

- Background Image Add an image you would like to use as your main background. Select from the Sensory Eye FX 2 Media Library or upload your own. Default = None.
- Object Image Add an image you would like to use as the target object. Select from the Sensory Eye FX 2 Media Library or upload your own.

The image must be a PNG with transparency and sized between 126 x 126 – 512 x 512 pixels.

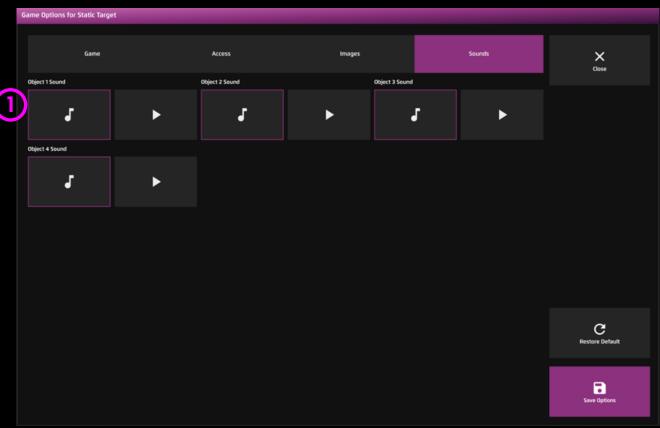




## Static Target - Sounds Options

Object Sound – Add your own sound for when the target appears onto the screen. Select from the media library or upload your own .mp3 audio file.

**TIP!** We recommend choosing a short sound clip that is below 1 seconds.

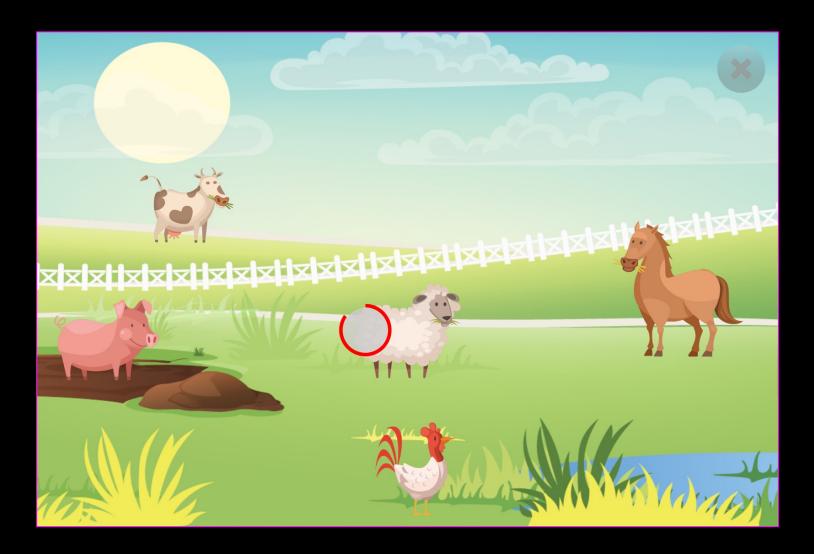






#### **Farm**

Meet the animals on the Farm – Pig, Horse, Cow, Cockerel, and Sheep are all visible in the scene, when the user looks at one of them the animal responds by animating and activating a sound. This application can be very motivating for users especially when they get feedback and acknowledgement from their communication partner. This activity is useful for early communication and stimulus recognition.







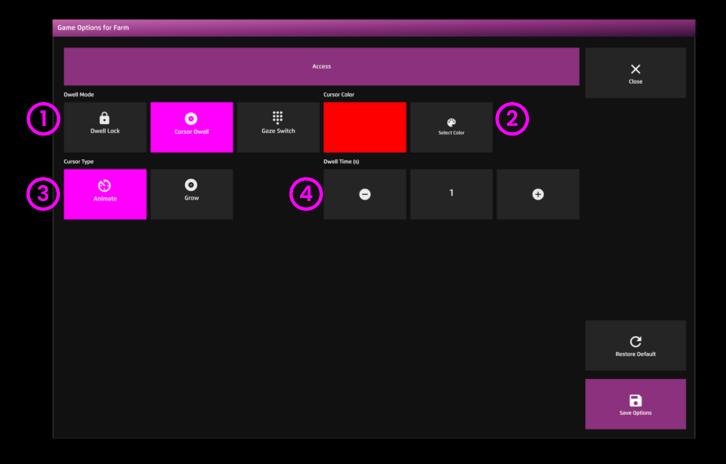
## Farm - Access Options

- Dwell Mode Select from:
  - Dwell Lock Cursor snaps to object when gaze is within proximity of object.
  - 2. Cursor Dwell (default) Cursor moves with gaze and does not snap to object.
  - 3. Gaze Switch Gaze to object and use switch to activate.
- Cursor colour Click select colour to customise cursor colour. Default = red.
- **3** Cursor Type Select whether to have an animated or growing cursor.

Default = Animate.

**Dwell Time** – Select dwell time from between –0 – 5 seconds in increments of 0.1.

Default = 1 second



















Level 4: Gaze Exploration

# GAZE EXPLORATION OF THE SECONDARY OF THE

Gaze Exploration activities are designed to promote exploration and play, encouraging engagement with a wider area of the screen.







Shooting

**Moving Target** 

Retro Kit

#### **Level 4: Activities Overview**

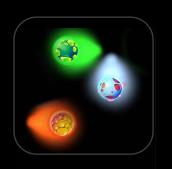














**Splodge colours** 

Piano Archery

Shooting

**Moving Target** 

**Retro Kit** 

#### Making it fun!

Gaze Exploration is about getting creative and having fun while improving gaze skills.

#### Creativity

Introducing paint images into
Splodge is a great way to
promote exploration of the
screen while painting a
colourful picture. Save images
to keep a record of progress
and share with others.

#### Music

Jamming out with Piano and
Retro Kit is a fun way to practice
targeting and shifting gaze
while making music. These
activities can be engaging on
their own, but if a facilitator can
jam along with an instrument
even better!

#### **Accuracy**

Shooting, Archery and Moving
Target provide excellent
practice opportunities to
develop accuracy skills. Moving
Target is tricky with 0 dwell
time, increase it and things can
become really challenging.

#### **Perseverance**

Perseverance is a key ingredient in achieving with eye gaze; as users develop their skills, try increasing the challenge in small steps like increasing dwell times, speeds and decreasing target sizes.

## **Level 4: Objectives**



**Level 4 Objectives:** include increasing screen time and building on the core skills that will have been achieved in the earlier levels. We are wanting to hone accuracy for calibration and promote the fun aspects of gaze interaction in order to maximise motivation.

#### Improving accuracy for calibration

One of the main reasons as to why users can become frustrated when using eye gaze, is due to having to work too hard to make selections. Typically, this is a result of poor calibration. At this stage users should be able to draw on earlier skills to achieve a personal calibration. Here are some tips for getting a calibration:

#### 1. Practice Activities

All levels feature activities that offer calibration skills practice: Level 1: Moving Snake, Level 2: Hide & Seek, Level 3: Static Target etc. Key aspect include – attending to a stimulus, maintaining attention as it moves and tracking it to a new location, maintaining focus on it until the eye tracker has gathered the necessary data. It is not easy unless the core skills are learned.

#### 2. Stimulus image

We have found it beneficial to practice with a motivating stimulus image that the user has shown preference for. First, we use hide and seek, then springy target and splat. When the user is showing attentional levels necessary for calibration, we load the same stimulus image into the calibration and attempt a 2 or 5 pt. calibration. The more points achieved, the more accurate the user will be.

#### 3. Calibration Trick

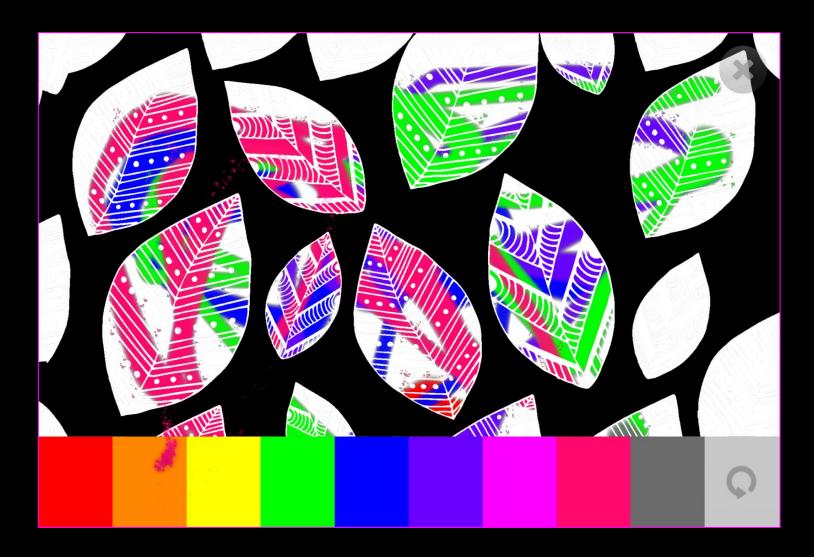
The idea of the trick is that we quickly shift from the Hide & Seek activity in Sensory Eye FX 2 where the user is showing good levels of engagement, straight into the calibration. For this to work effectively we need minimum distraction. It is advisable to have the calibration open in the taskbar with the stimulus loaded before starting the session with the user. This means you can jump into it and start the calibration quickly with minimum disruption. We have done this many hundreds of times and it works. You can also use Step Through Calibration if you think the user will need to disengage between points.





# **Splodge colours**

Splodge colours is a fun painting activity where users can select a range of different colours from the colour pallet at the bottom of the screen and create colourful works of art. Select different background images to paint, set dwell time for the colour pallet and remember to press "P" Key to take a screenshot!





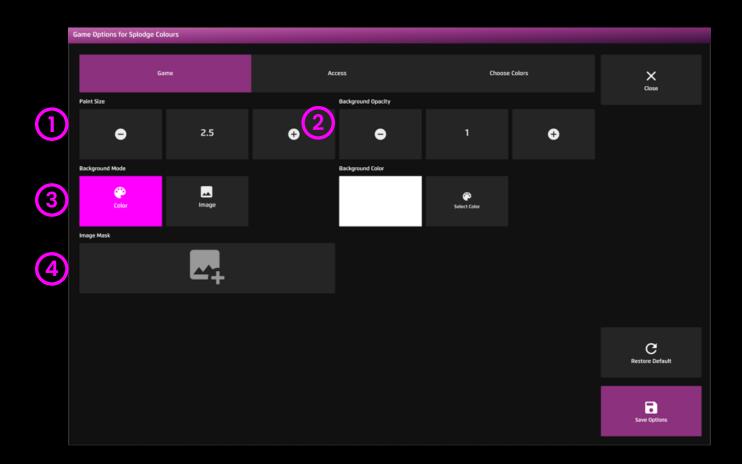


## Splodge colours - Game Options

- Size Adjust the size of the paint brush. You can choose between 1 9 in increments of 0.5.

  Default = 2.5
- Opacity Adjust the opacity of the paint between 0 1. Default = 1 (opaque).
- **Background Mode** Change the background selecting from the following:
  - colour set background colour from colour picker window
  - Image Add background image from media library or upload your own. Supports .jpg and .png formats.
- Paint Image Add an image to turn Splodge into a colouring in activity. Select from media library or upload your own.

NB: Image must be a 1920 x 1080 PNG with transparency to work as a colouring in activity.



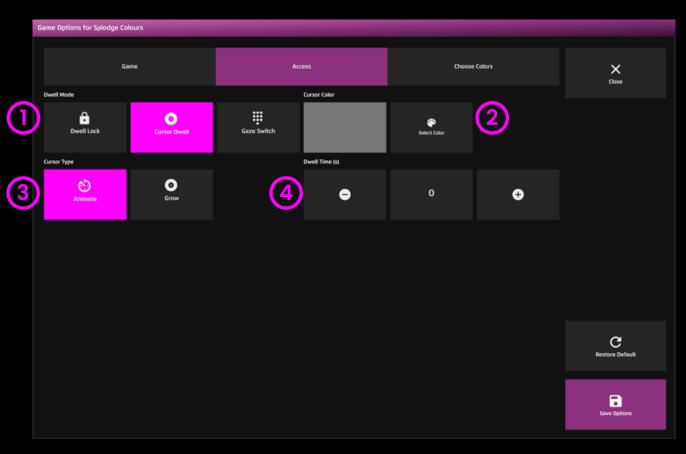




## **Splodge colours - Access Options**

- Dwell Mode Select from:
  - Dwell Lock Cursor snaps to object when gaze is within proximity of object.
  - 2. Cursor Dwell (default) Cursor moves with gaze and does not snap to object.
  - 3. Gaze Switch Gaze to object and use switch to activate.
- **Cursor colour** Click select colour to customise cursor colour. Default = grey.
- 3 Cursor Type Select whether to have an animated or growing cursor. Default = Animate.
- **Dwell Time** Select dwell time from between -0 5 seconds in increments of 0.1.

  Default = 1 second

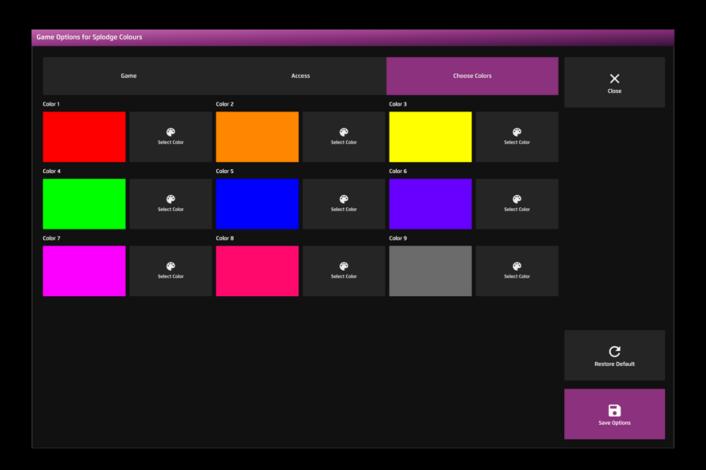






# Splodge colours - colour Options

colour 1 - 9 - Customise the colours of the paint trails by selecting colours from the select colour options.







## **Piano**

Piano continues the theme of horizontal scanning. Here users can play a piano with their eyes – as they look at the notes sounds play. Piano can be a great motivator and useful for building up precision skills. Piano defaults to 0 dwell time for instant feedback, you may like to explore dwell times to be able to move to different notes without triggering them right away.



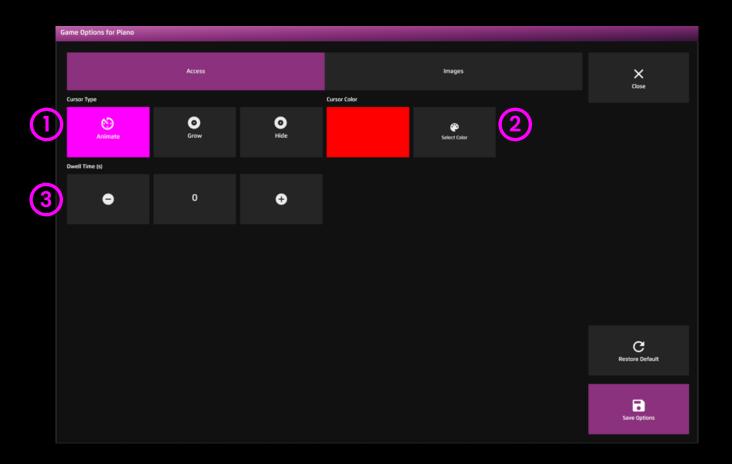




# Piano - Access Options

- Cursor Type Select whether to have an animated or growing cursor or to hide it.
  - Default = Animate.
- 2 Cursor colour Click select colour to customise cursor colour. Default = red
- 3 **Dwell Time** Select dwell time from between -0 5 seconds in increments of 0.1.

  Default = 0

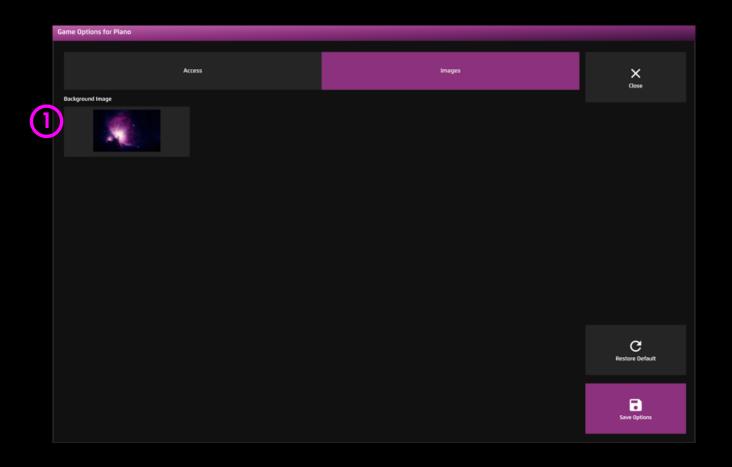






# Piano - Images Options

Background Image – Add an image you would like to use as your main background. Select from the Sensory Eye FX 2 Media Library or upload your own. Default = None.







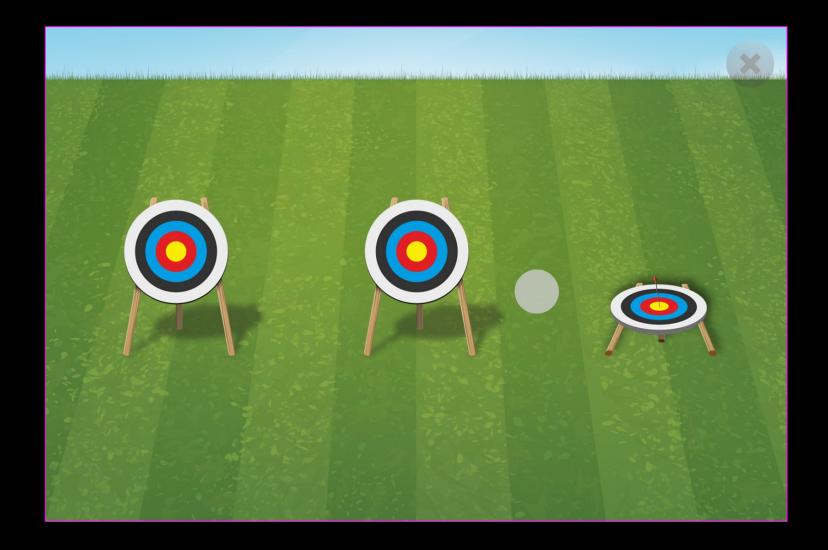
# **Archery**

Archery is a fun targeting activity designed to get users looking to specific regions of the screen.

Can you work your way up to the maximum number of targets?

Default dwell time is 1sec.

Up/Down keys to increase or decrease dwell time by +/- 0.1 second. Set dwell to 0 to shoot on sight.

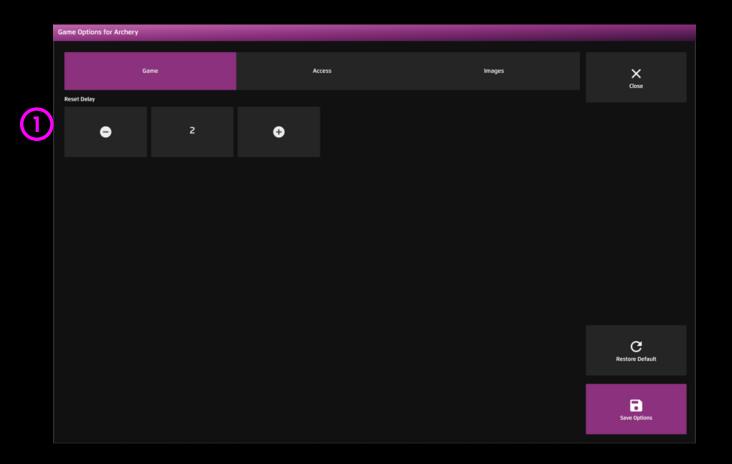






# **Archery - Game Options**

Reset Delay – Reset delay is the time delay between when all targets have been hit and the next level. You can choose between 2 – 10 seconds in increments of 1. Default = 2







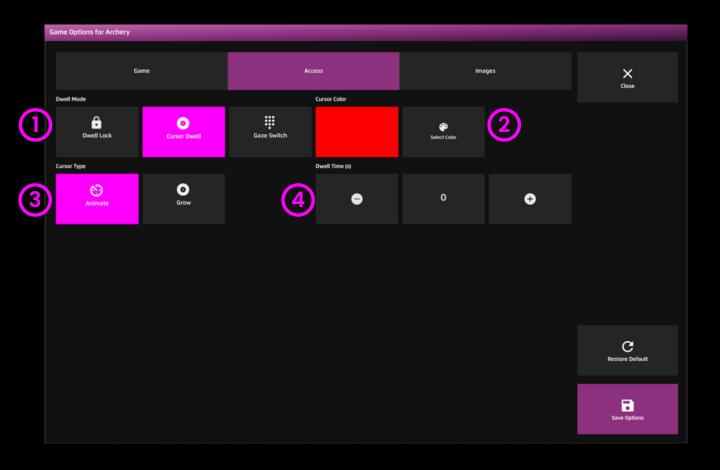
# **Archery - Access Options**

- 1 Dwell Mode Select from:
  - Dwell Lock Cursor snaps to object when gaze is within proximity of object.
  - 2. Cursor Dwell (default) Cursor moves with gaze and does not snap to object.
  - 3. Gaze Switch Gaze to object and use switch to activate.
- **Cursor colour** Click select colour to customise cursor colour. Default = grey.
- **3 Cursor Type** Select whether to have an animated or growing cursor.

Default = Animate.

**Dwell Time** – Select dwell time from between -0 – 5 seconds in increments of 0.1.

Default = 0 second

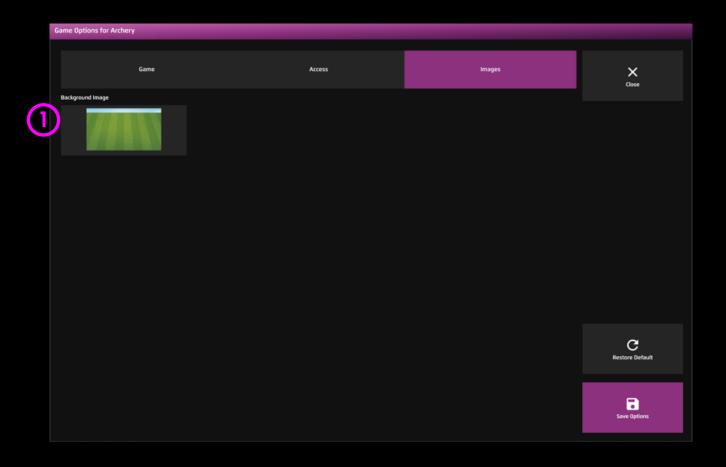






# **Archery - Images Options**

Background Image – Add an image you would like to use as your main background. Select from the Sensory Eye FX 2 Media Library or upload your own. Default = None.







# **Shooting**

Can you steady your gaze to shoot all the targets in each row? Choose between Jewels or Circus mode in settings, increase the number of rows, increase dwell time to enhance the challenge! The idea of this activity is to help users to develop gaze control along the horizontal plane.

It is interesting to see how users develop strategies for targeting: do they rapidly shift their gaze from top to bottom in a random fashion, or do they work out that maximum effect for minimum effort is to wait until all images are visible before shifting their eyes rapidly along the rows.





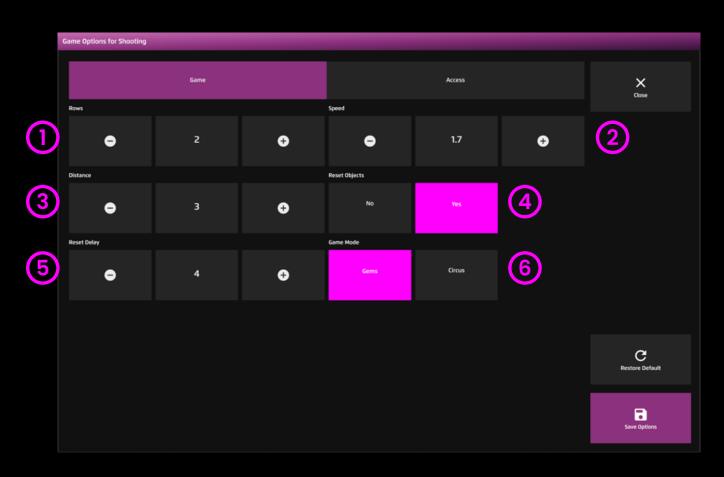


# Shooting - Game Options

- Rows Set number of rows between 1 4. Default = 2
- Speed Set the speed of moving objects between 0.2
   5 (fastest). Default = 1.7
- 3 **Distance** Set distance between objects between 1 10. 1 means objects are tight to each other, 10 creates a large gap. Default = 3
- Reset Objects

Yes (default) = Objects return and can be shot at again.
No = Objects do not return.

- Reset Delay If reset objects set to yes; set numbers of seconds for objects to reset after being shot between 1
   10 seconds. Default = 4 seconds
- **Game Mode** Choose between two game skins; a gems theme and a circus theme. Default = Gems





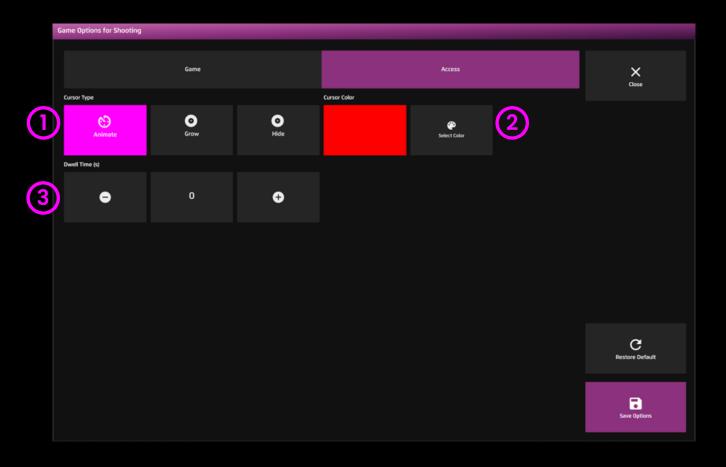


# **Shooting - Access Options**

- Cursor Type Select whether to have an animated or growing cursor or to hide it.

  Default = Animate.
- **Cursor colour** Click select colour to customise cursor colour. Default = red
- 3 **Dwell Time** Select dwell time from between -0 5 seconds in increments of 0.1.

  Default = 0



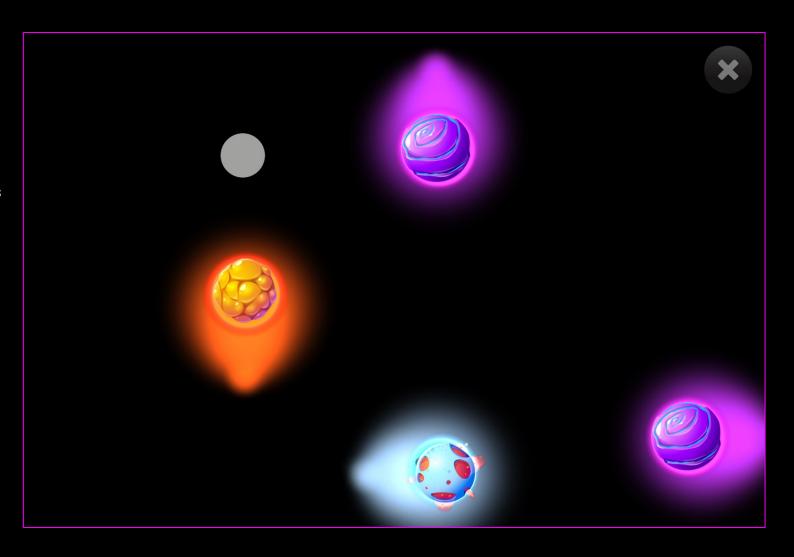




# **Moving Target**

coloured planets move rapidly across the screen. When users target a planet, it will disappear, and a sound will trigger. The idea here is not necessarily to hit every planet, it is far more important for users to track the planets.

Pay attention to the gaze cursor and how the user tracks the stimuli – do they get easily distracted or can they focus and track a particular stimulus? This is a difficult activity from an eye control perspective, as it is fast and there is a lot going on visually to distract users. We should be observing the way the user focuses their attention and deals with distraction.

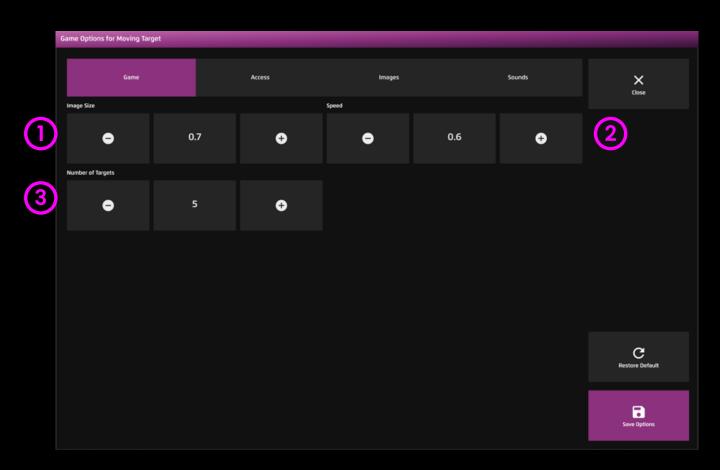






# **Moving Target - Game Options**

- Image Size Choose the size of the stimulus image between 0.1 1 in increments of 0.1.1 is the largest size. Default = 1.
- Speed Choose the speed at which objects move between 0.1 1 (fastest) in increments of 0.1. Default = 0.6.
- Number of Targets Set number of moving targets to between 1 5. Default = 5





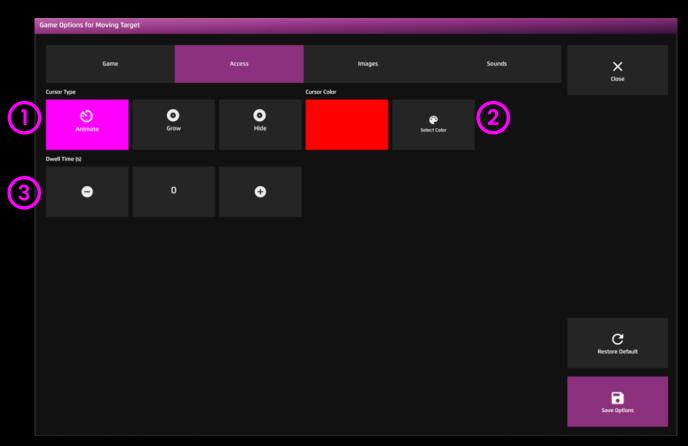


# **Moving Target - Access Options**

- Cursor Type Select whether to have an animated or growing cursor or to hide it.

  Default = Animate.
- **Cursor colour** Click select colour to customise cursor colour. Default = red
- 3 **Dwell Time** Select dwell time from between -0 5 seconds in increments of 0.1.

  Default = 0



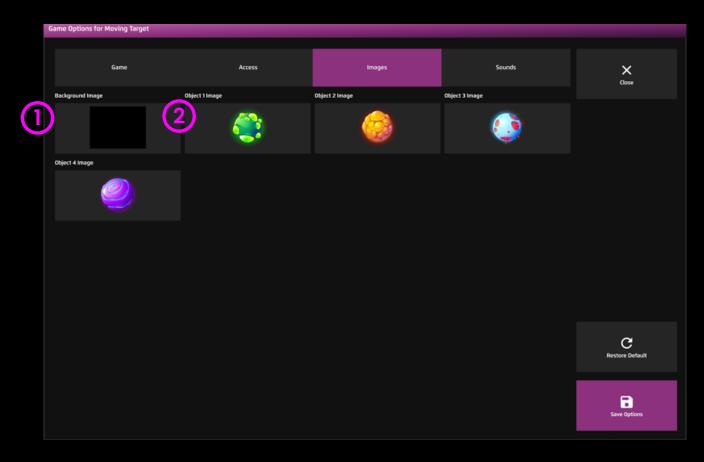




# **Moving Target - Images Options**

- Background Image Add an image you would like to use as your main background. Select from the Sensory Eye FX 2 Media Library or upload your own. Default = None.
- Object Image Add an image you would like to use as the target object. Select from the Sensory Eye FX 2 Media Library or upload your own.

The image must be a PNG with transparency and sized between 126 x 126 – 512 x 512 pixels.



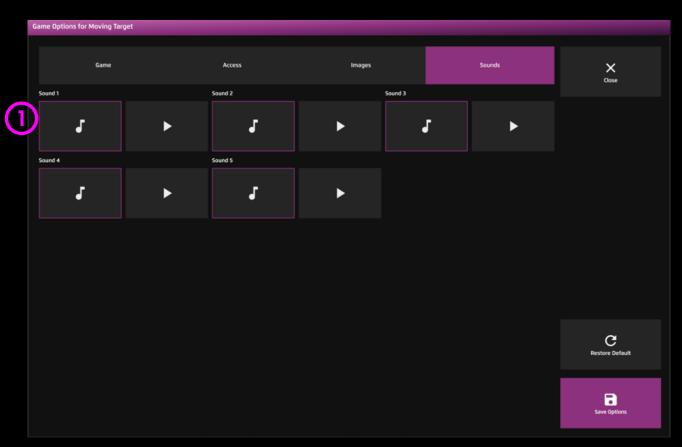




# **Moving Target - Sounds Options**

Sound – Add your own sound for when the user hits the moving target. Select from the media library or upload your own .mp3 audio file.

**TIP!** We recommend choosing a short sound clip that is below 1 seconds.

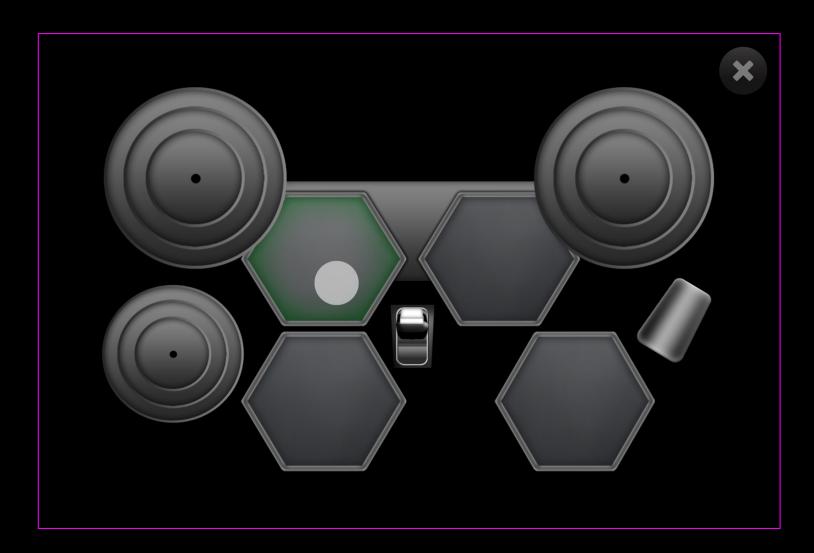






# **Retro Kit**

Create beats with the Retro Kit as you look around the screen to activate the drum hits. This activity is designed to help users realise that eye control can be fun and musically expressive. Retro Kit could be used by an eye gaze user as part of a music session – music is very motivating and can be a great way to explore social interaction and communication in a group situation.





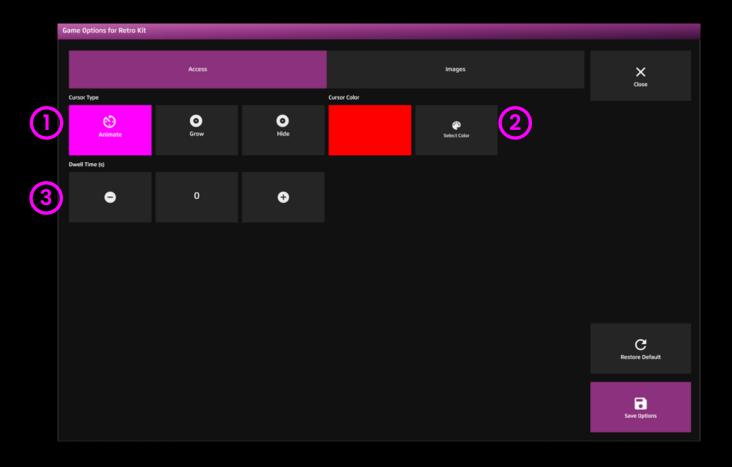


# **Retro Kit - Access Options**

- Cursor Type Select whether to have an animated or growing cursor or to hide it.

  Default = Animate.
- **Cursor colour** Click select colour to customise cursor colour. Default = red
- 3 **Dwell Time** Select dwell time from between -0 5 seconds in increments of 0.1.

  Default = 0

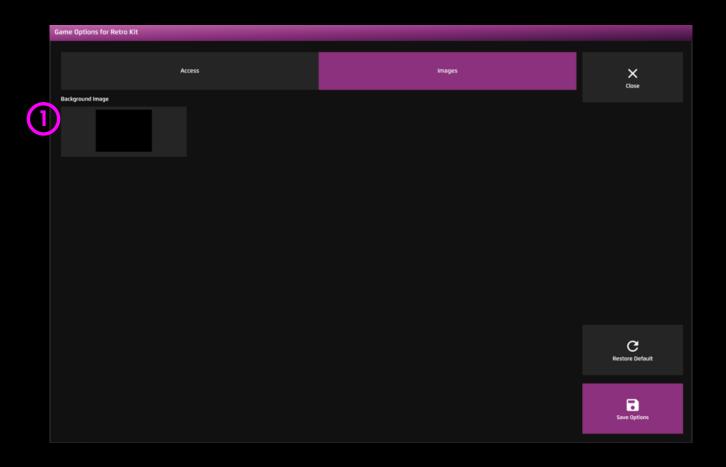






# Retro Kit - Images Options

Background Image – Add an image you would like to use as your main background. Select from the Sensory Eye FX 2 Media Library or upload your own. Default = None.

















.evel 5: Gaze Control

# GAZE CONTROL GAZE CONTROL

Gaze Control activities can help users achieve greater control, a higher degree of accuracy and a more detailed understanding of the dwell and switch activation functions

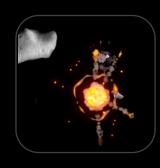
# **Level 5: Activities Overview**

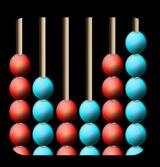














**Object Control** 

Memory

Catch

**Asteroids** 

**Abacus** 

**Sound Squares** 

### Bringing it all together

Level 5

### Latching

The balloon image in Object
Control activity (or a custom
image you upload) is designed to
be latched using dwell and moved
around latched to the cursor. This
is a simple introduction to drag
and drop functionality. Look away
from the screen to unlatch.

### **Memory**

Matching pairs in Memory helps to develop short term visual memory. Start off with a single pair to familiarise the user with the interaction feedback and then increase 2x2 and so on. Use your own images to add additional concepts like core words and so on.

### **Precision**

The Asteroids activity adds a new level of challenge, with trajectories that are deliberately awkward. The idea is that we help the user to do things that are more complex with their eyes than they will need to do in other types of software, such as Communicator 5 or TD Snap

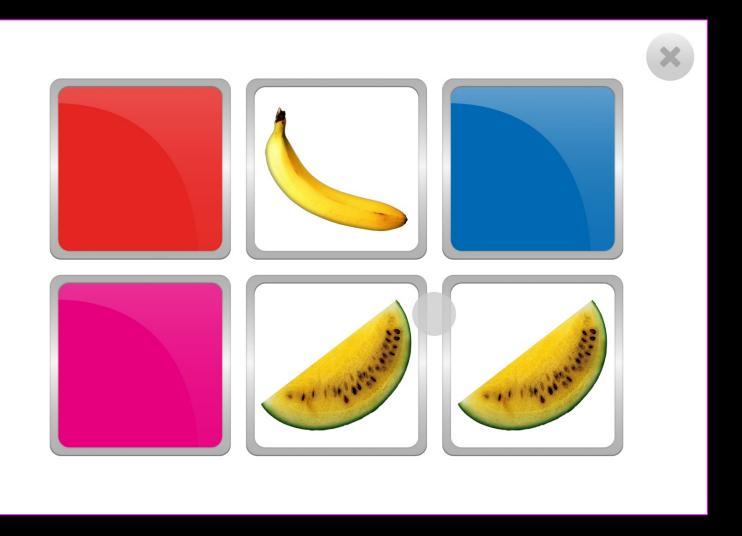
### Control

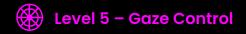
Sound Squares has a mode called Track Building where the user can toggle different instruments on and off. Here users can develop their control skills by adding and removing instruments. Experiment with different sound combinations to maintain motivation.



# **Memory Grid**

Memory is a fun matching game which provides a big cheer when a user matches all pairs. It is designed to randomise the content after each cycle, so it is not the same second time around. Memory is useful for developing dwell selection skills and great for helping to explore recall and visual memory. Change the images in settings to suit the interests of the user, change the number of pairs in play.

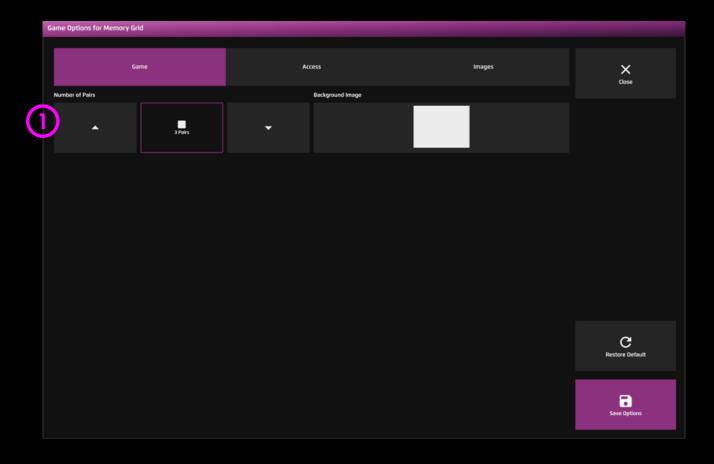


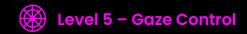




# Memory Grid - Game Options

- Number of Pairs Define the number of pairs between 1 and 8 pairs. Default = 3 pairs
- Background Image Add an image you would like to use as your main background. Select from the Sensory Eye FX 2 Media Library or upload your own. Default = None.







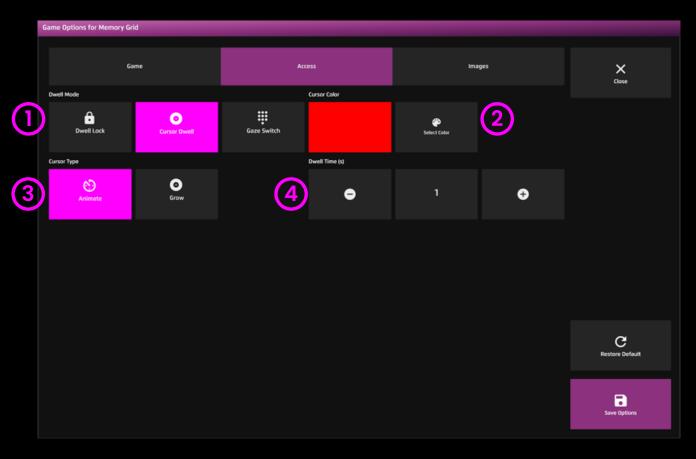
# **Memory Grid - Access Options**

- Dwell Mode Select from:
  - Dwell Lock Cursor snaps to object when gaze is within proximity of object.
  - 2. Cursor Dwell (default) Cursor moves with gaze and does not snap to object.
  - 3. Gaze Switch Gaze to object and use switch to activate.
- **Cursor colour** Click select colour to customise cursor colour. Default = red.
- 3 Cursor Type Select whether to have an animated or growing cursor.

Default = Animate.

**Dwell Time** – Select dwell time from between -0 – 5 seconds in increments of 0.1.

Default = 1 second

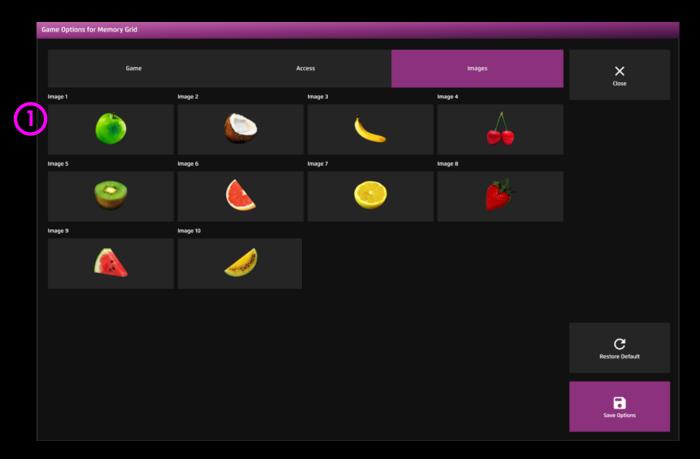




# Memory Grid - Images Options

Image – Add images to be used for memory pairs. Select from the Sensory Eye FX 2 Media Library or upload your own.

The image must be a PNG with transparency and sized between 126 x 126 – 512 x 512 pixels.





# Catch

Can you catch the Flying Saucer or the Bee objects as they fly around the screen trying to avoid your gaze? The object enters the screen one side and floats across to the opposing side shifting up and down as it moves. The motion path is different each time. When a user hits the object, it animates and falls down the screen. Increase dwell time to increase difficulty.







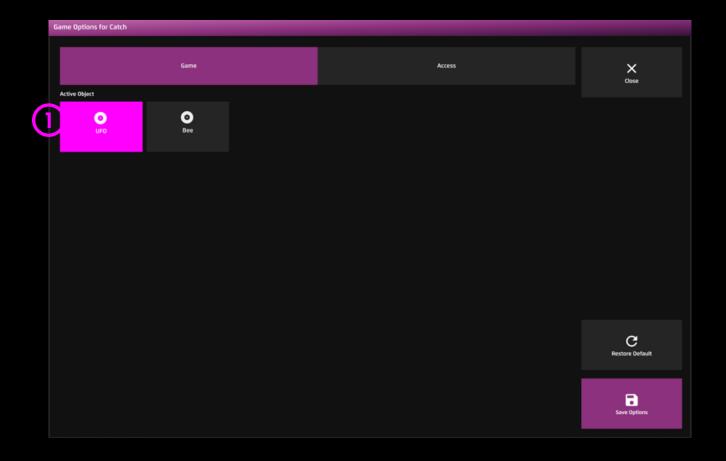


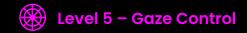
# Catch - Game Options

Active Object – Choose between two activity themes:

UFO (default) – stop the UFO from reaching earth

Bee – Catch the Bee





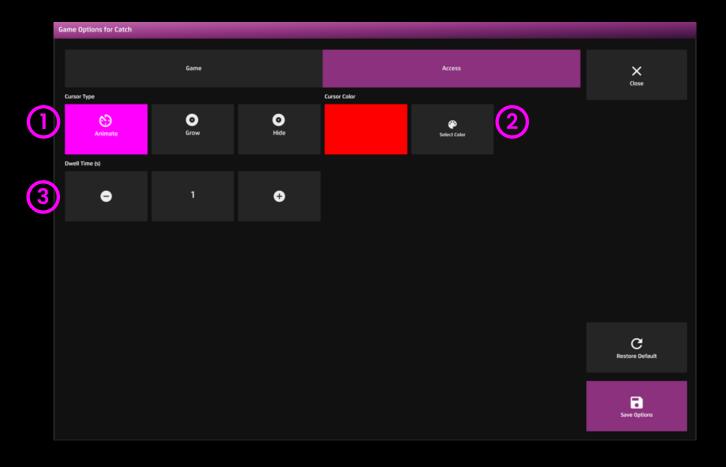


# **Catch - Access Options**

- Cursor Type Select whether to have an animated or growing cursor or to hide it.

  Default = Animate.
- **Cursor colour** Click select colour to customise cursor colour. Default = red
- 3 **Dwell Time** Select dwell time from between -0 5 seconds in increments of 0.1.

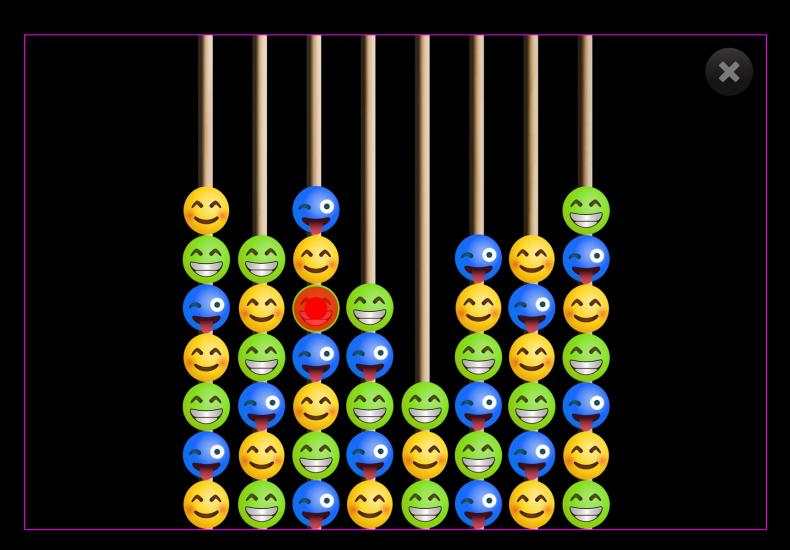
  Default = 0





# **Abacus**

Abacus is all about dwell selection and perseverance – here users are introduced to a 1 second dwell time and 56 image targets. The idea is to focus attention on each target for 1 second until all targets have disappeared. This is very repetitive but will help to reinforce the concept of dwelling like no other activity. Change the stimuli images, dwell method and more in settings.



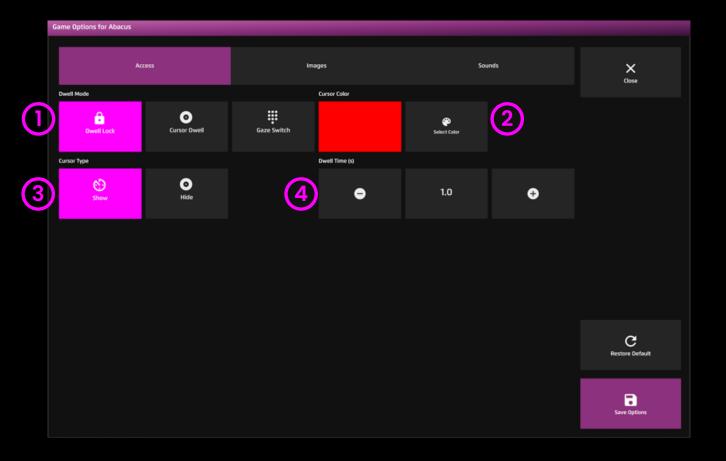


# **Abacus - Access Options**

- 1 Dwell Mode Select from:
  - 1. Dwell Lock (default) Cursor snaps to object when gaze is within proximity of object.
  - Cursor Dwell Cursor moves with gaze and does not snap to object.
  - 3. Gaze Switch Gaze to object and use switch to activate.
- **Cursor colour** Click select colour to customise cursor colour. Default = red.
- 3 Cursor Type Select whether to have an animated or growing cursor.

Default = Animate.

Dwell Time – Select dwell time from between 0
 – 5 seconds in increments of 0.1. Default = 1
 second



# 0

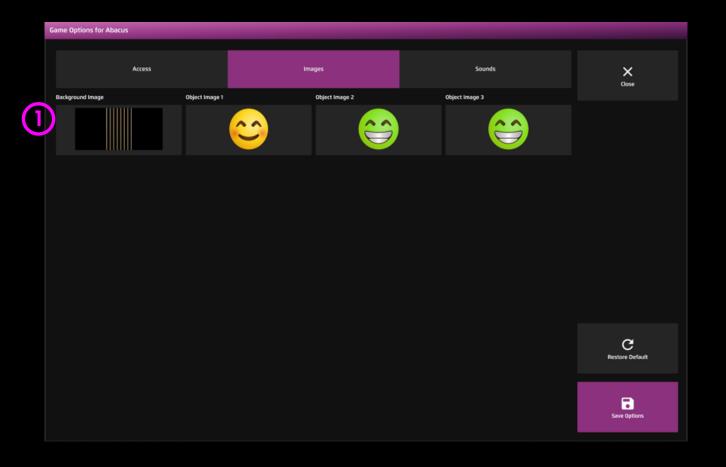
# **Abacus - Images Options**

Background Image – Add an image you would like to use as your main background. Select from the Sensory Eye FX 2 Media Library or upload your own.

Default = None.

Object Image – Add an image you would like to use abacus beads. Select from the Sensory Eye FX 2 Media Library or upload your own.

The image must be a PNG with transparency and sized between 126 x 126 – 512 x 512 pixels.

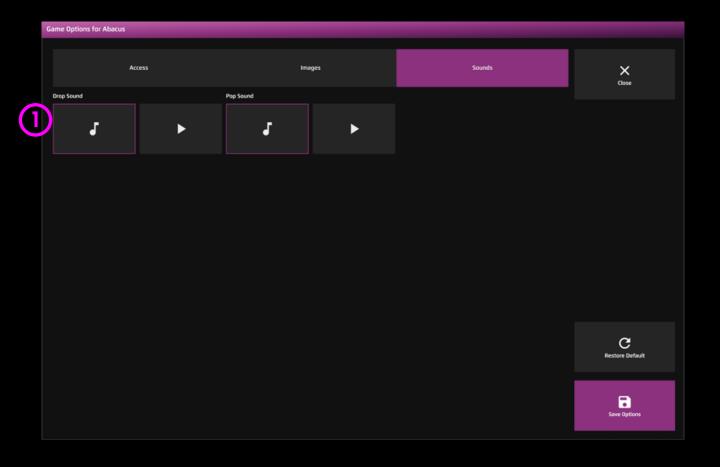




# **Abacus - Sounds Options**

- Drop Sound Add your own sound for when the abacus beads drop. Select from the media library or upload your own .mp3 audio file.
- Pop Sound Add a pop sound for abacus beads that have been gazed on along the top row. Select from the media library or upload your own .mp3 audio file.

**TIP!** We recommend choosing a short sound clip that is below 1 seconds.





# **Asteroids**

Asteroids appear in the centre of the screen and grow larger as they move toward the user. Can you shoot them before they whizz by? This is possibly the hardest of the targeting applications due to the trajectories the asteroids take. It requires users to be accurate with their targeting skills. The asteroids are programmed to cover all areas of the screen and explode on gaze impact. For extra difficulty increase the dwell time. Asteroid image can be changed in settings.





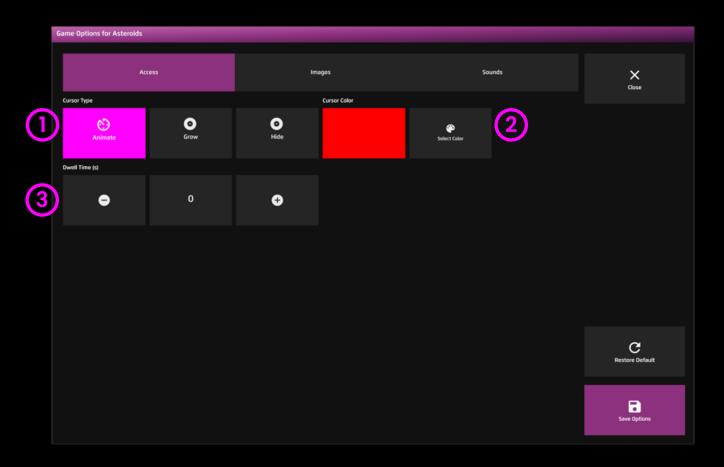


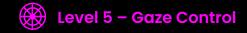
# **Asteroids - Access Options**

- Cursor Type Select whether to have an animated or growing cursor or to hide it.

  Default = Animate.
- **Cursor colour** Click select colour to customise cursor colour. Default = red
- 3 **Dwell Time** Select dwell time from between -0 5 seconds in increments of 0.1.

  Default = 0







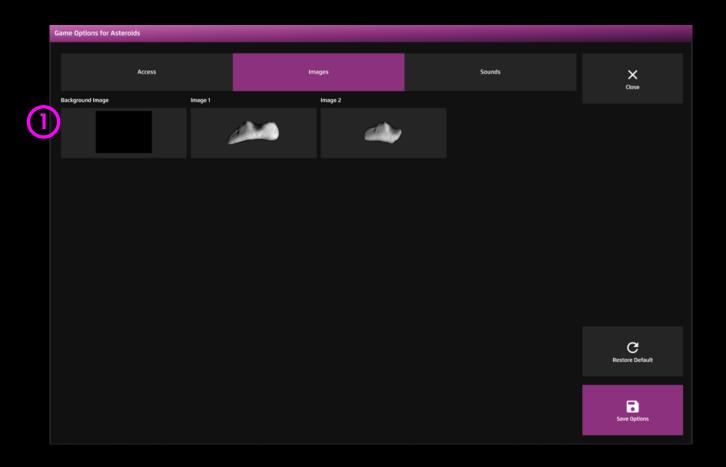
# **Asteroids - Images Options**

Background Image – Add an image you would like to use as your main background. Select from the Sensory Eye FX 2 Media Library or upload your own.

Default = None.

Object Image – Add images you would like to use as targets for destruction. Select from the Sensory Eye FX 2 Media Library or upload your own.

The image must be a PNG with transparency and sized between 126 x 126 – 512 x 512 pixels.



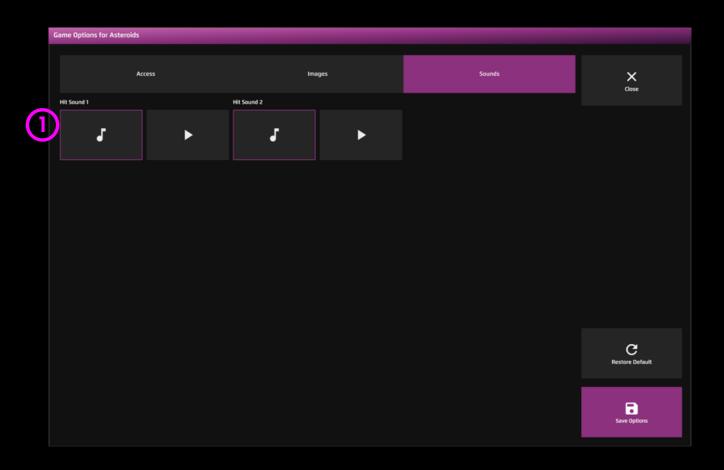




# **Asteroids - Sounds Options**

Hit Sound – Add your own sounds for when an object is destroyed. Select from the media library or upload your own .mp3 audio file.

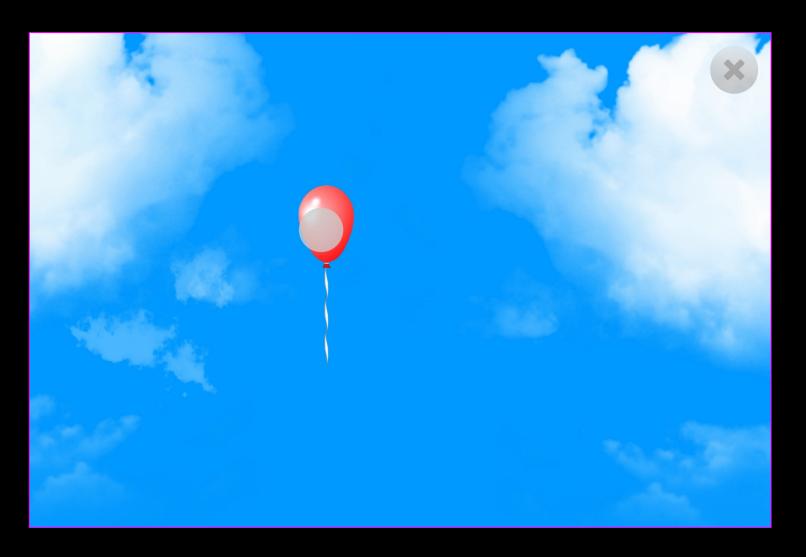
**TIP!** We recommend choosing a short sound clip that is below 1 seconds.

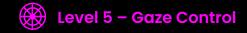




# **Object Control**

Can you target and control the balloon to prevent it drifting off the screen? When the user looks at the balloon the gaze cursor latches on to it and it can be moved around the screen. When the user shifts their gaze, the balloon becomes detached from the gaze cursor and floats down to the bottom of the screen. If the user does not reengage with the balloon, it will pop when it hits the bottom edge of the screen and immediately reappear at the top of the screen – this animated visual shift is designed to reengage the user's attention. Change stimulus image, background in settings.

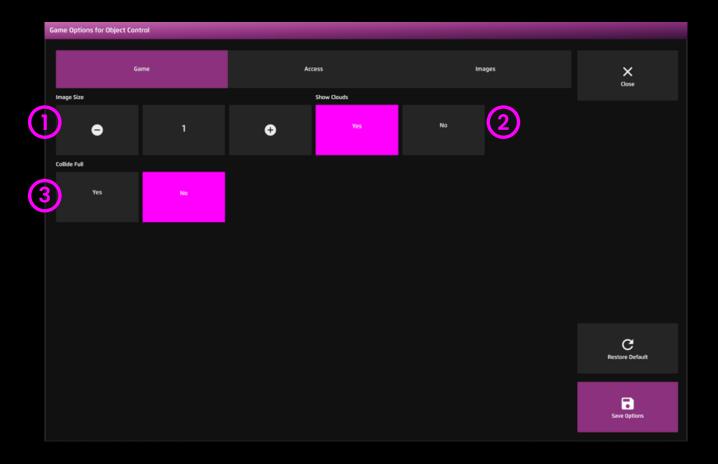


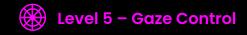




# **Object Control - Game Options**

- Image Size Choose the size of the stimulus image between 0.1 1 in increments of 0.1.1 is the largest size. Default = 1.
- Show Clouds Turn clouds on/off. Default = Yes (on)
- 3 Collide Full C







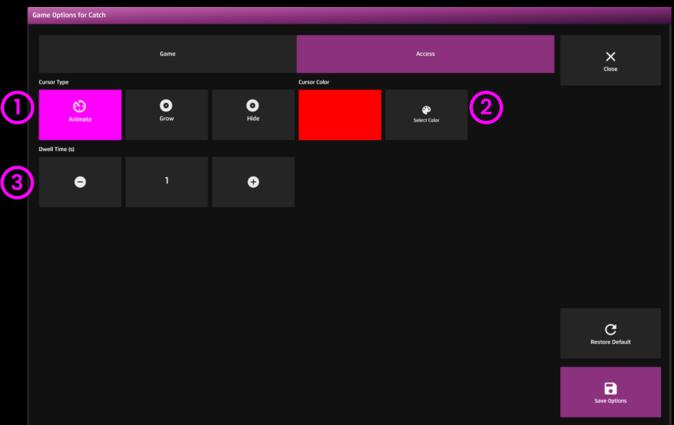
### **Object Control - Access Options**

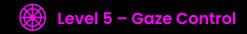
Cursor Type – Select whether to have an animated or growing cursor or to hide it.

Default = Animate.

- **Cursor colour** Click select colour to customise cursor colour. Default = green
- 3 **Dwell Time** Select dwell time from between –0 5 seconds in increments of 0.1.

  Default = 1







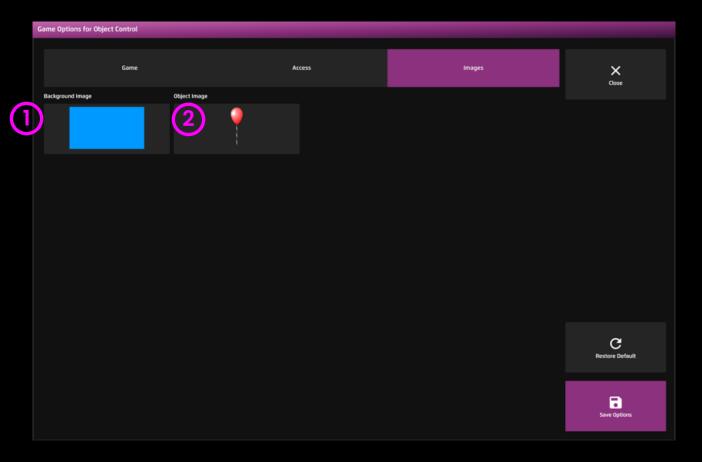
### **Object Control - Images Options**

Background Image – Add an image you would like to use as your main background. Select from the Sensory Eye FX 2 Media Library or upload your own.

Default = None.

Object Image – Add your own object image to control with gaze. Select from the Sensory Eye FX 2 Media Library or upload your own.

The image must be a PNG with transparency and sized between 126 x 126 – 512 x 512 pixels.

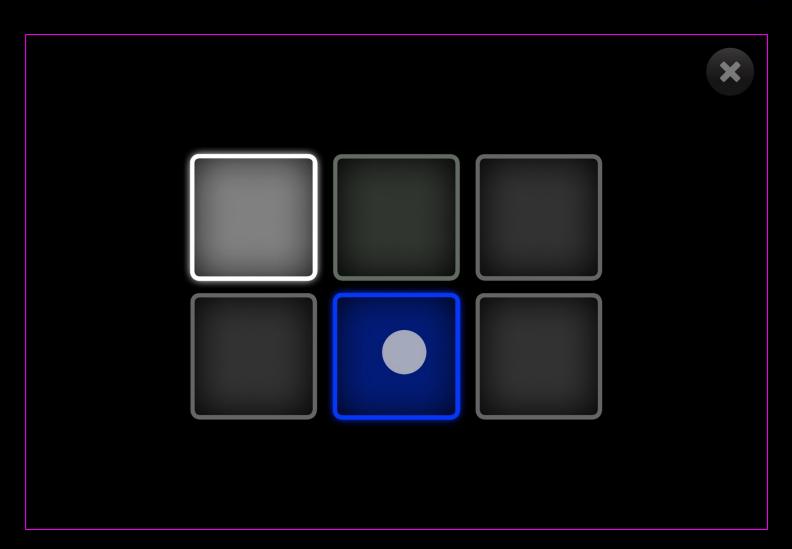


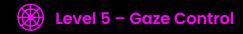


### **Sound Squares**

Sound Squares is a set of 6 funky sound pads. Each pad has as sound, and colour assigned to it.

The uppermost left cell has a dwell function which acts like a toggled switch – when activated this will trigger a drum loop backing track, it can be stopped by dwelling over it again. Choose track builder mode to stop and start a sequence of sounds. Add your own sounds and use this activity as a gazecontrolled instrument.







### Sound Squares - Game Options

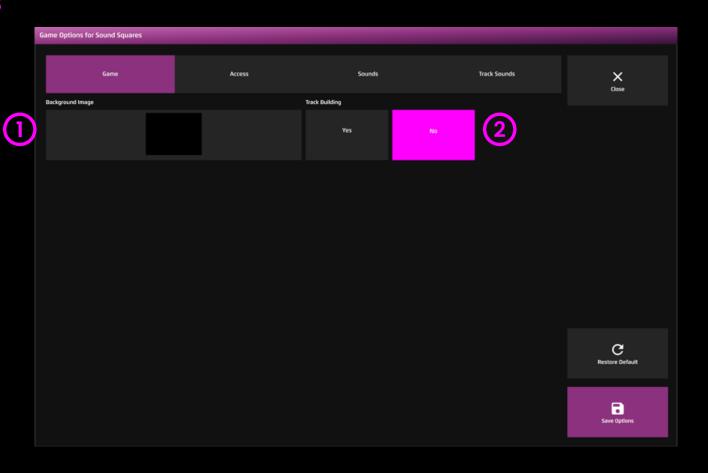
Background Image – Add an image you would like to use as your main background. Select from the Sensory Eye FX 2 Media Library or upload your own.

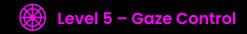
Default = None.

### Track Building –

Yes = Track sounds will stay on once selected. Use gaze dwell to turn on/off. This allows you to create multi-layered music.

No = Tracks only play whilst gaze is over the sound square.





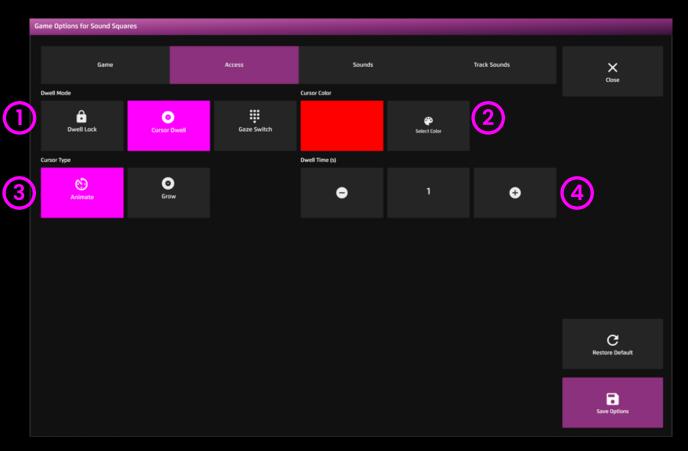


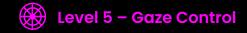
### Sound Squares - Access Options

- Dwell Mode Select from:
  - 1. Dwell Lock (default) Cursor snaps to object when gaze is within proximity of object.
  - Cursor Dwell Cursor moves with gaze and does not snap to object.
  - 3. Gaze Switch Gaze to object and use switch to activate.
- **Cursor colour** Click select colour to customise cursor colour. Default = red.
- 3 Cursor Type Select whether to have an animated or growing cursor.

Default = Animate.

Dwell Time - Select dwell time from between 0
 - 5 seconds in increments of 0.1. Default = 1
 second





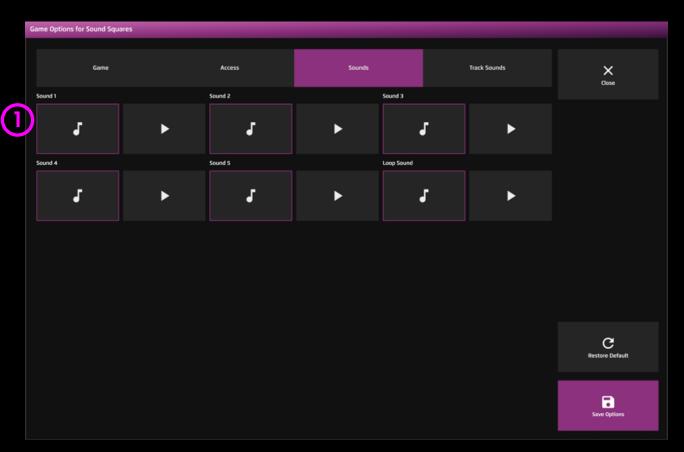


### Sound Squares - Sounds Options

Sound – When Track Builder is set to NO in Game Options, these are the sounds that play.

Add your own sounds for when the user hits a sound square. Select from the media library or upload your own .mp3 audio file.

**TIP!** We recommend choosing a short sound clip that is below 1 seconds.



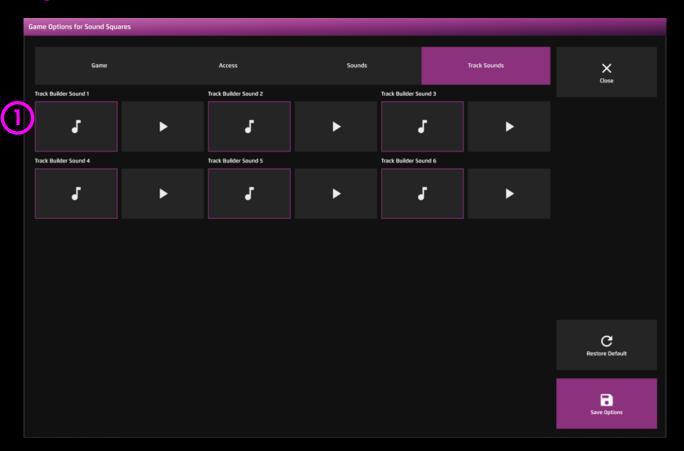


### Sound Squares - Track Sounds Options

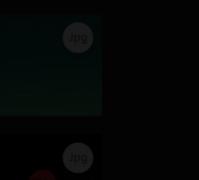
Track Builder Sound – When Track Builder is set to YES in Game Options, these are the sounds that play.

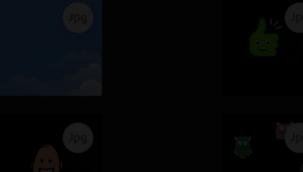
Add your own sounds for when the user hits a sound square. Select from the media library or upload your own .mp3 audio file

**TIP!** Track sounds should be a few seconds long and loop.













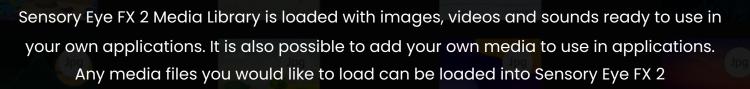






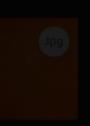






















### Media Library

### **How it works**

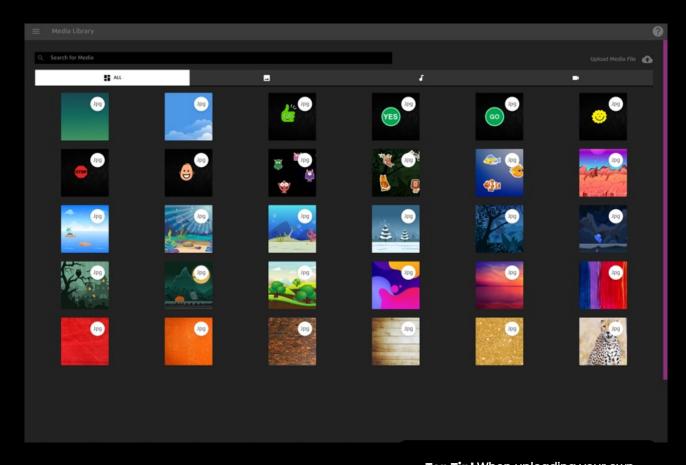
The Media Library has a range of media assets that can be used when creating apps.

### How to use it

When looking for media, use the search function or the tabs at the top to browse different media types;

- Images
- Sounds
- Videos





**Top Tip!** When uploading your own media, remember to save into the correct category for image type, obj, background etc.



### RECORDINGS

Recordings contains the screen capture video sessions that have been recorded on the system.

Videos can be invaluable when reviewing how users interacted during a session.

**NB:** To capture eye gaze sessions, press R on the keyboard to start recording and R again to stop.



### **Recordings**

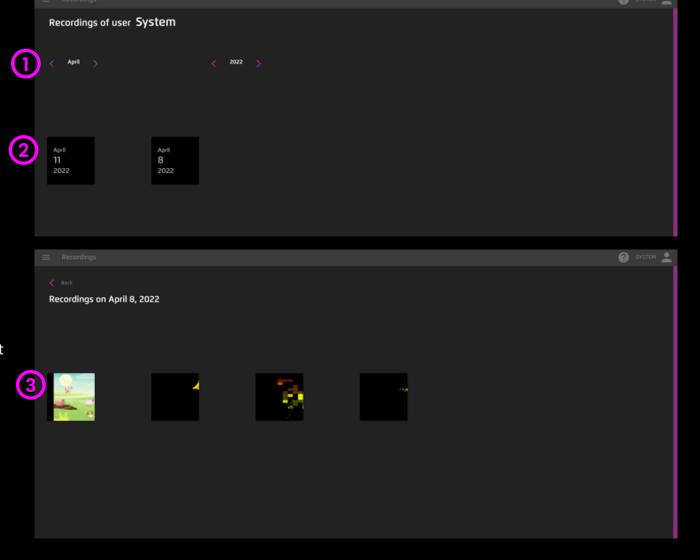
### **How it works**

Recordings stores all screen capture video sessions that have been recorded on the system. Here, you can playback, download and delete videos.

### How to use it:

- **Filter video date** Use month and year filters to navigate to days that videos were recorded during the selected month.
- Select Recording Date Select a date to view all videos that were captured on that day.
- Open Video Click on a video icon to open it in a new window.

**Top Tip!** If you are logged in as a user, only recordings associated with the selected user will show.





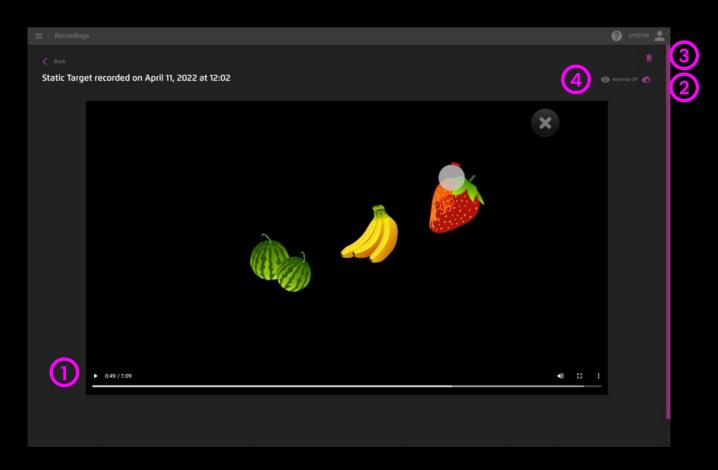
### **Recordings**

### **How it works**

Recordings stores all screen capture video sessions that have been recorded on the system. Here, you can playback, download and delete videos.

### How to use it:

- Playback Click the play icon to playback video.
- **Download** Download .webm video file using download icon.
- 3 Delete Delete a recording by clicking the trash icon.
- Heatmap Turn Heatmap on to pause video and view gaze heatmap.





### **SCREENSHOTS**

Screenshots contains the screen capture images that have been saved onto the system.

Screenshots are HD resolution, meaning you can capture high quality images of a users painting using Splodge or Splodge colours to share online or print to frame and hang on your walls.

**NB:** To capture a screenshot, press P on the keyboard.



### **How it works**

Screenshots stores all screen capture images that have been saved to your PC. Here, you can view, download and delete images.

### How to use it:

- Filter Image date Use month and year filters to navigate to days that images were captured during the selected month.
- Select Image Date Select a date to view all images that were captured on that day.
- 3 Open Video Click on a video icon to open it in a new window.

**Top Tip!** If you are logged in as a user, only screenshots associated with the selected user will show.



Screenshots of user System



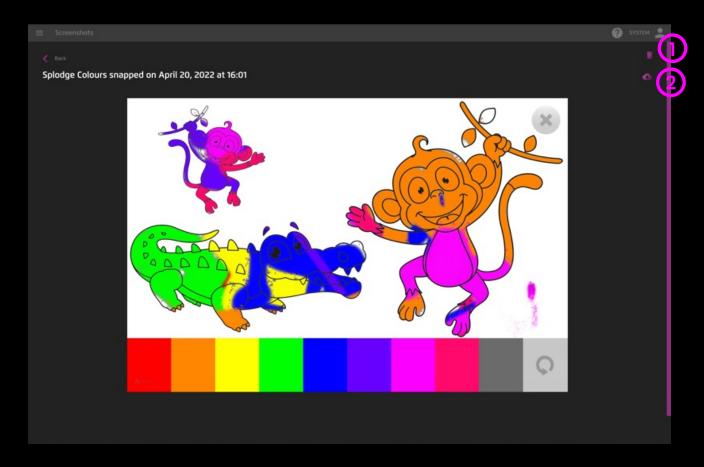
### **Screenshots**

### **How it works**

When a screenshot has been selected, a new window opens. Here, you can view, download and delete the screenshot.

### How to use it:

- Delete Delete a recording by clicking the trash icon.
- 2 **Download** Save .png image file to your PC using download icon.





### USERS

Sensory Eye FX 2 supports the creation of user accounts where game settings are saved for the user. This is especially helpful for saving setups for different access needs or where you would like to customize and save configurations for different users.

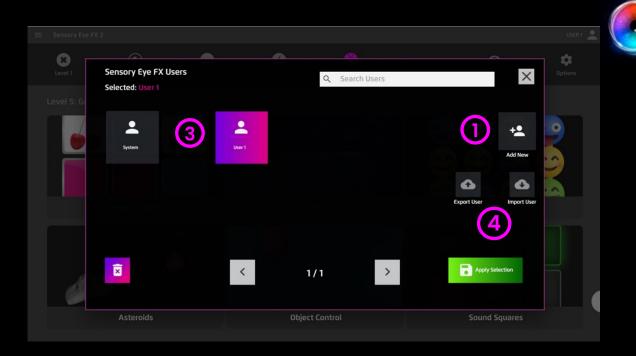


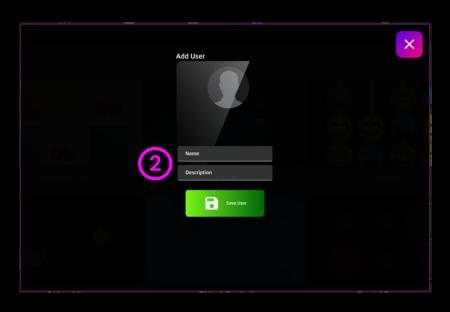
### **How it works**

It is possible to create as many users as required. When a user is selected, all game settings will be loaded from their previous session.

#### How to use it:

- View Users Select the icon from the software UI to open the Users window.
- Add a User Select Add New from the Sensory Eye FX 2
  Users window.
- 2 Create User Input user name and description in the pop-up and select Save User.
- 3 Login Users Simply select a user and their game options will be loaded, ready for them to play.
- Import/Export the selected user game configuration preferences (dwell times, colours, images, customised graphics) will be exported from the current version and can be imported into a different version of Sensory Eye FX 2.



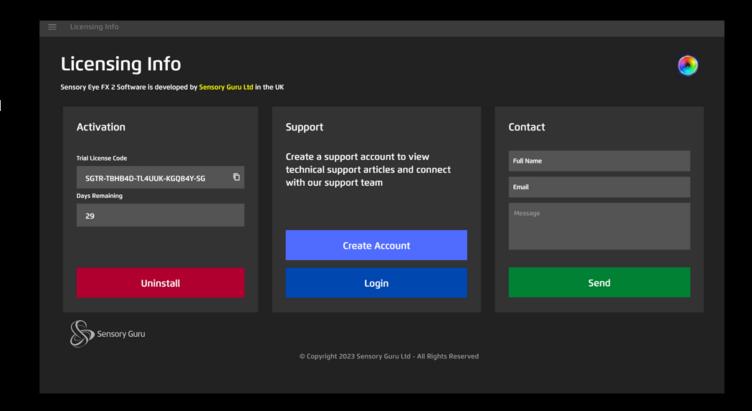




### **Licensing Info**

#### The Licensing Info page includes:

- The Activation tab shows the license code for your current installation. While this screenshot showcases a trial code, the complete version will exhibit the purchased license code. This tab also enables you to uninstall the software, leading to the uninstall executable. You can decide to either remove all Sensory Eye FX 2 files from your system or upgrade to the latest version. Uninstalling releases the code from the server.
- The Support tab takes you to the support portal, where you can register a ticket or request a remote session if needed.
- The contact tab allows you to send a message to Sensory Guru; the creators of Sensory Eye FX 2. Whether that is to tell us about an idea you have to improve Sensory Eye FX 2, ask questions about the software or just to say "Hello!"





### CONFIG

Config is where we configure global software settings. Config allows us to set up the UI language, alter display and performance settings and change the access menu voice commands. Global Access settings for Eye Gaze and Switches can also be configured here.



### Config

- Gaze Switch Set gaze preferences: dwell, gaze switch and gaze off.
- **Dwell Time** Adjust global dwell time in increments of 0.1 seconds.
- Game Exit Button:

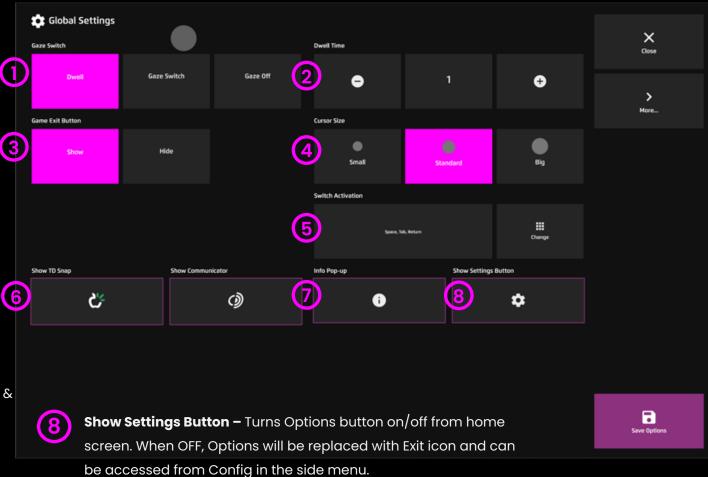
Show – Exit button can be seen in-game

Hide – Exit button is hidden from games. Use ESC key to exit games when exit button is hidden.

- Cursor Size Adjust size of cursor
- Switch Activation View & edit switch activation keys
- 6 Show TD Snap/Communicator Turn option to open TD Snap & Communicator from Options on/off. Default is on.
- 7 Info Pop Up:

On – Activity description and options pops up when an activity is selected.

Off - Activity will bypass pop-up and load game

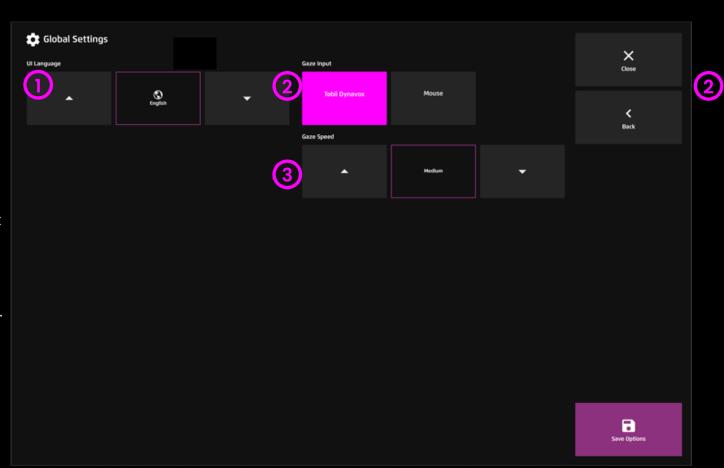




### Config

- Ul Language Select software language
- Gaze Input Select interaction input; Tobii Dyanvox Eye Gaze device or Mouse.
- **Gaze Speed 6** options; slower, slow, medium, fast, fastest and standard.

If you are using screen recording, choose fast. This setting increases responsiveness of cursor and decreases easing.





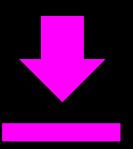
## SOFTWARE INSTALLATION

Sensory Eye FX 2 software is preinstalled on all Sensory Eye FX 2 systems. From time to time, it will be necessary to update your software or complete a fresh installation, such as in the event of a hardware failure and so on. The following pages detail the installation and update process.

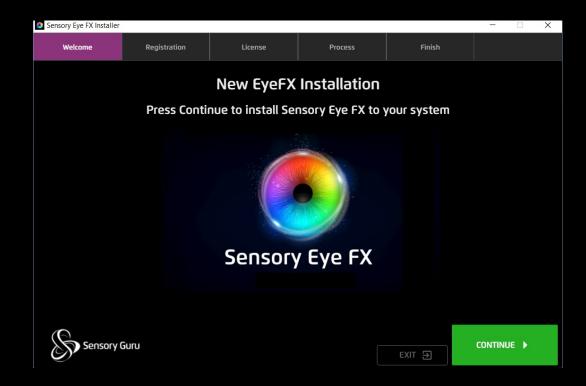


When a purchase of Sensory Eye FX 2 software has been processed, you will be sent a license code and download link for Sensory Eye FX 2. Download the Sensory Eye FX 2 installer from:

https://sensoryguru.com/download-sensory-eye-fx-2

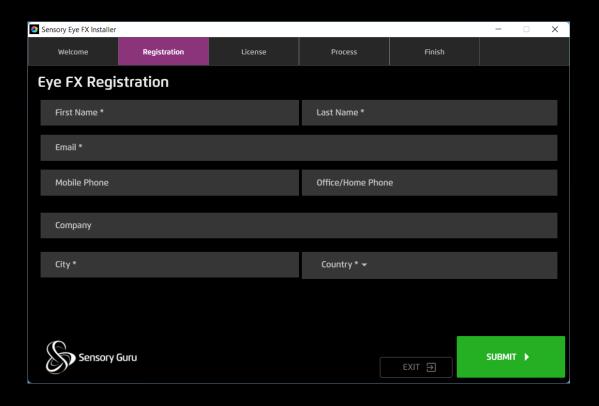


Open the downloaded Sensory Eye FX 2 Installer file to open the installer. Select CONTINUE to begin install process.

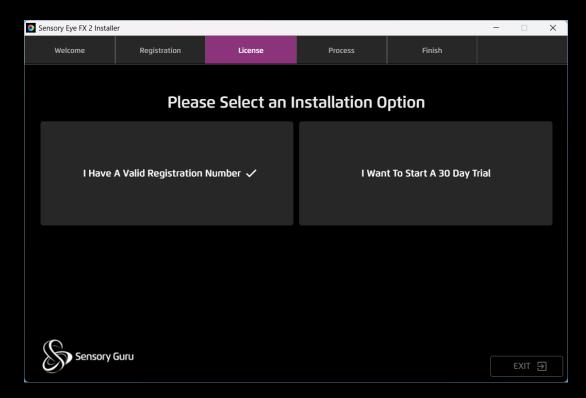




3 Enter details to register the Sensory Eye FX 2 software

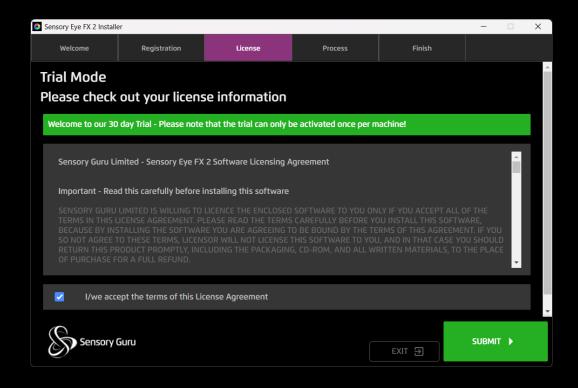


Enter License Code or choose to Start Trial

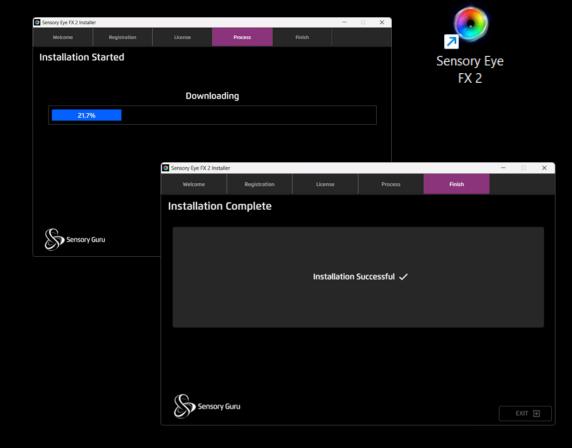




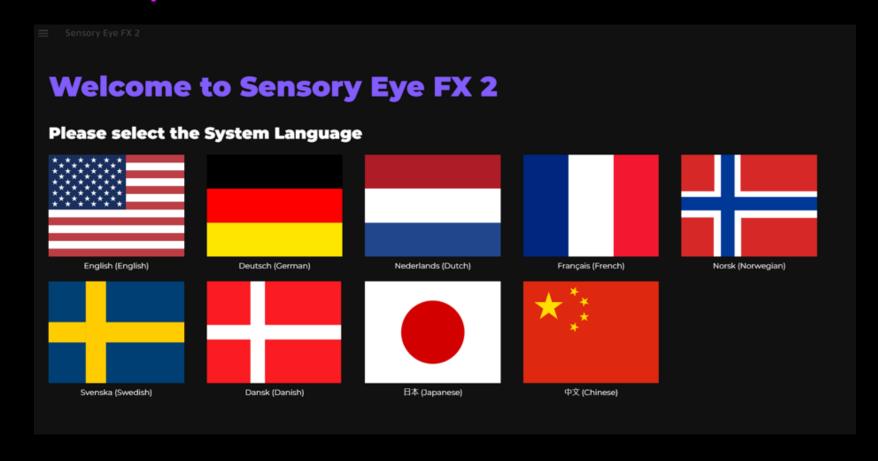
5 Trial Mode – accept license terms to continue



**Download** of the main application files will begin and show the successful screen when it completes. Click EXIT to close the installer and then run Sensory Eye FX 2 from the desktop icon:







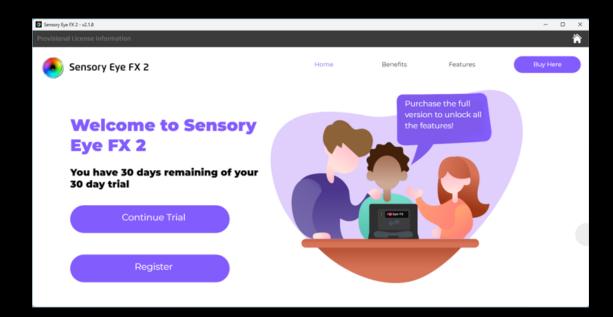
When you launch Sensory Eye FX 2 software for the first time you can select the system language. This can be changed in Config settings at a later date, if needed.

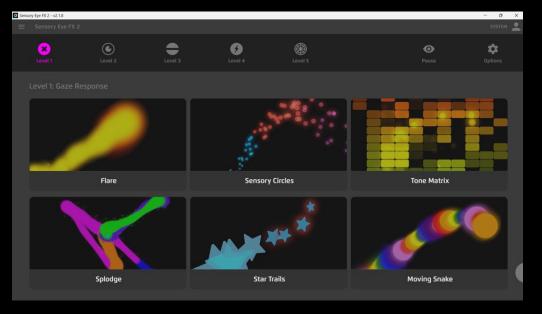


### **Trial Installation**

In **Trial Mode** you will see the message screen informing how many days remain. If you have a code you can register it here to fully license the software. After licensing this message screen will not be displayed again!

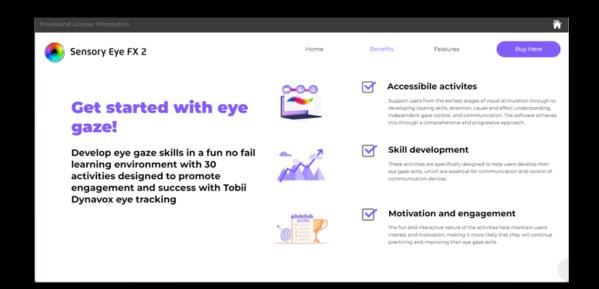
When you click Continue Trial it will launch into the Level 1 activities screen.



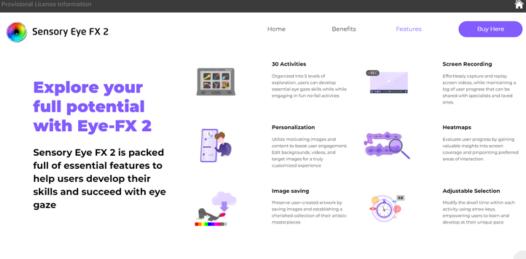


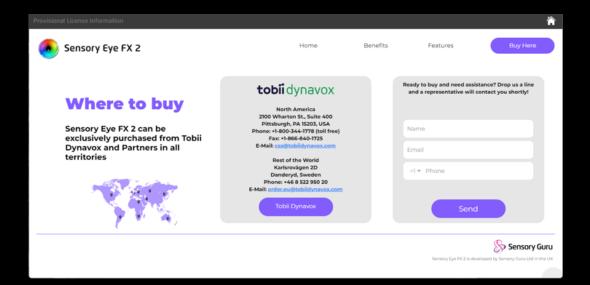
### **Trial Installation**

Information support pages that appear when the trial is activated. It outlines the benefits and provides an opportunity to contact Tobii Dynavox or Sensory Guru for assistance.







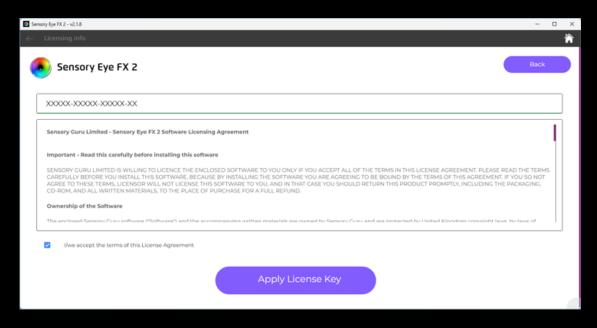




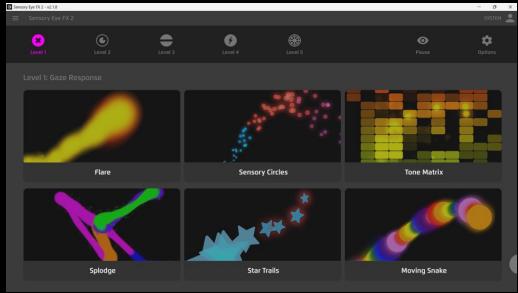
### **License Installation**

Enter a valid license key here in the format of:

XXXXX-XXXXX-XXXXX-XX



When you apply a valid license key it will launch into the Level 1 activities screen.





# Technical Information



### Sensory Eye FX 2 – Minimum PC Specification

	Sensory Eye FX 2
Operating System	Windows 10/11
CPU	Intel Core I-5 7200U
Memory (RAM)	8GB
Graphics	Intel HD Graphics 620
Hard Disk Space	1.8GB installation
Screen Resolution	1920x1080 (Full HD)



### Sensory Eye FX 2 – Compatible Eye Trackers

Sensory Eye FX 2 is compatible with Tobii and Tobii Dynavox Eye Trackers built on the IS4 and IS5 gaze platforms. At the time of publication Sensory Eye FX 2 works exclusively with Tobii and Tobii Dynavox Eye Trackers.

### What devices are not supported

Older devices like Tobii C-Series, i12.i15, i12+/i15+, PCEye One, PCEye GO that require Tobii Gaze Interaction Suite (TGIS) cannot support Sensory Eye FX 2

**NB:** Sensory Eye FX 2 will use the currently calibrated user profile that is configured in Tobii Experience software. There is no requirement to recalibrate for Sensory Eye FX 2 or start any external process. If you want to load a new calibration profile while Sensory Eye FX 2 is running, open Tobii Experience and switch user.

Peripheral USB Trackers	Device with Integrated Trackers
Tobii Dynavox PCEye 5	Tobii Dynavox I-Series i-13/i-16
Tobii Dynavox PCEye Plus	Alienware m15, m17, m17R3, Area 51m, Alienware 17,
Tobii Dynavox PCEye Mini, Explore	Acer Aspire v17 Nitro
Tobii Eye Tracker 5	Acer Predator 21x
Tobii 4c, EyeX	MSI GT 72





### **Publication Notice**

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Sensory Guru Ltd., reserves the right to make changes without notice in the specifications and materials contained herein and shall not be responsible for any damages (including consequential) caused by reliance on the materials presented, including but not limited to typographical and other errors relating to the publication.

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# The End! You made it! Now go make the Magic