purple mash

Computing Scheme of Work

Unit 5.5 – Game Creator

Contents

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# Introduction

These lessons use the Purple Mash tool 2DIY 3D. A user guide to this tool can be found in the Guides and Resources area of Purple Mash.

Note: To enhance playability of the pupils' games on your school's devices, you can change the resolution of images in the game. If game play is very slow, try recommending that pupils click on the button and change the images to a lower resolution display.
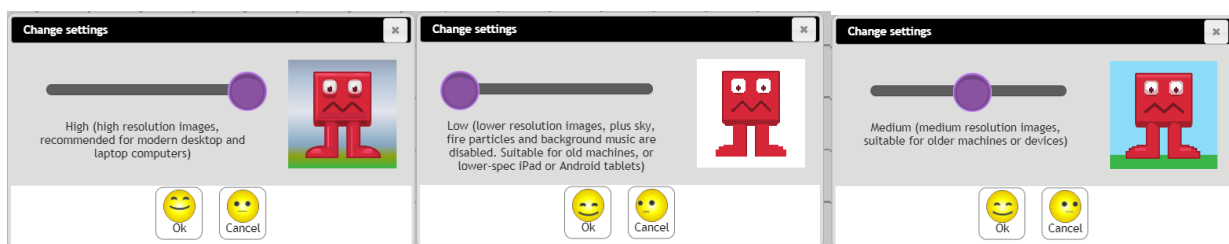
These lesson plans make use of the facility within Purple Mash to set activities for pupils which they can then complete and hand in online (2Dos). This enables you to assess their work easily as well as distribute resources to all pupils. If pupils have not opened 2Dos before, then they will need more detailed instructions about how to do this. If your pupils do not have individual logins for Purple Mash, we can help you with this. Contact your school Purple Mash administrator or email us at support@2simple.com.

A teacher's guide to 2Dos can be found in the Teacher section: 2Dos Guide.

To force links within this document to open in a new tab, right-click on the link and then select 'Open link in new tab'.

The last two lessons provide opportunities for the pupils to share and evaluate their work. The easiest way to carry out this sharing process is to use 2Blog to create a class blog where each child in the class has write access; they can then write a blog post and attach their game. Other pupils will be able to comment on the game on the blog post. For details about how to set up such a blog see the 2Blog guide in the Teacher section: 2Blog Guide.

Medium Term Plan

Lesson	Aims	Success Criteria
[1](#)	To set the scene.	• Pupils can review and analyse a computer game. • Pupils can describe some of the elements that make a successful game. • Pupils can begin the process of designing their own game.
[2](#)	To create the game environment.	• Pupils can design the setting for their game so that it fits with the selected theme. • Pupils can upload images or use the drawing tools to create the walls, floor, and roof.
[3](#)	To create the game quest.	• Pupils can design characters for their game. • Pupils can decide upon, and change, the animations and sounds that the characters make.
[4](#)	To finish and share the game	• Pupils can make their game more unique by selecting the appropriate options to maximise the playability. • Pupils can write informative instructions for their game so that other people can play it.
[5](#)	To evaluate their and peers' games.	• Pupils can evaluate my their own and peers' games to help improve their design for the future.

Lesson 1 – Setting the Scene

Aim

- To Introduce the 2DIY 3D tool.
- To begin planning a game.

Success criteria

- Pupils can review and analyse a computer game.
- Pupils can describe some of the elements that make a successful game.
- Pupils can begin the process of designing their own game.

Resources

Unless otherwise stated, all resources can be found on the main unit 5.5 page. From here, click on the icon to set a resource as a 2do for your class. Use the links below to preview the resources; right-click on the link and 'open in new tab' so you do not lose this page.

- Computer Game Planner (to be set a 2Do for pupils). This will be added to throughout the four lessons. The file contains a 'Think about' box with cues to help the pupils fill in the relevant information. Each lesson, they will add detail as they develop their game. It should be set as a 2Do for the pupils with a hand-in date when the whole unit is due to be finished.
  This can be printed with the 'Think about' box information, should you prefer to use it away from the computers. However, it does not include the functionality of the online activity, e.g. word banks, clipart and writing prompts.
- Tips for Taking Screenshots at the end of this unit. You might wish to print copies of this for the pupils to guide them in taking screenshots of their work to upload to the planning document.

  Note: there are two levels of complexity for 2DIY 3D, pupils should use the more complex 'My Game' mode unless pupils with individual needs would benefit from the simpler version.

Activities

1. 2DIY 3D allows users to create a maze and then turn it into a 3D computer game. The aim is to avoid the 'baddies' and collect 'treasure'.

2. Open the program, which can be found in the Tools section of Purple Mash, on the whiteboard.

3. At the bottom of the page are some example games made by the pupils at Porchester Junior School.

    - Open one of the games and look at it from a design perspective, rather than just playing it.
    - Look at the use of an instruction screen; why is this needed?
    - Play the game and show pupils the map screen at the top right.
    - What do the different coloured blobs represent?
    - Can they work out in which direction to head?
    - How does the scoring work?
    - Can you lose lives? (Some of the example games do and some do not.)
    - Compare the first game to the other games; what is different and what is the same?
    - Are some of the games too easy or too hard? How does this affect how much fun they are to play?
    - Are there any faults with the games? Lack of life losing in some, or spelling errors; do they affect your impression/opinion of the game?

4. Discuss setting the scene for the game:

    - All the example games have a Halloween theme about catching magical items and avoiding creepy creatures; this is the 'story' of the game. Having a story helps the designer to come up with ideas for what the game should look like.

    - As a class, discuss a suitable theme for your class games; something linked to your current topic or a book that you are reading as a class is likely to spark lots of ideas. You might decide that pupils could choose different themes depending upon books that they are reading themselves or other ideas.

    - Remind pupils that games can have up to three levels and these levels do not have to have the same environment or the same baddies and treasure. Some pupils might want to expand beyond one level to add complexity to the story of their game and make each level progressively harder. For others, it might be better to concentrate on one, well designed, level. The lesson plans take you through the process with one level.

5.   Ask pupils to open the game-designing leaflet from their 2Dos. They should fill in the section called 'Setting the Scene' and save their leaflet.

6.   Pupils who have finished could watch the video called 'Customizing the Game' on the 2DIY 3D page in Purple Mash. Then, they could decide upon some images or textures for the ground, walls, and ceiling, using the ready-made ones in 2DIY 3D or the Internet to find appropriate images. We will be continuing with this in the next lesson, so it does not have to be finalised yet.

7.   Pupils can insert images of their chosen textures onto the front page of the leaflet. See the Tips for Taking Screenshots document if pupils wish to take screenshots of the readymade textures in Purple Mash. To upload saved images from a device, click on the green arrow in an image box of the design leaflet then locate the image file on your device and click Open. There are controls to rotate and zoom in on parts of an image on this screen. Then, when you are happy with the image, click .

Extension:

Success Criteria: (from the exceeding section of assessment guidance)

Children think about the entirety of their game at the design stage and are able to consider the game environment, objects and characters and the interactions of these components and their impact on playability to design a good end-user experience before proceeding with the construction stage.

If not already done in part 4(iii), children should set the scenes for a second and third level in their game. Each level does not need to be set in the same place, but children will need to explain the story that links one scene to the next to make their game flow. For example, if level 1 is set in a forest and level 2 is set in a pyramid, explain that whilst searching in the forest the explorer came across a hidden pyramid deep within the trees. Record this information within the game design leaflet

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Lesson 2 – Creating the Game Environment

Aim

- To design the game environment.

Success criteria

- Pupils can design the setting for their game so that it fits with the selected theme.
- Pupils can upload images or use the drawing tools to create the walls, floor, and roof.

Resources

- Planning leaflet from last week to continue.
- Tips for Taking Screenshots document at the end of this unit. You might wish to print copies of this for the pupils to guide them in taking screenshots of their work to upload to the planning document.

Activities

1. Watch the video 'Customizing the Game' as a class.

2. Pupils will be using the 'My Game' mode to have access to the full functionality of 2DIY 3D.

3. Remind pupils of the need to save their work regularly as they go along.

4. Show pupils that when designing, they can preview their game at any stage to see what it looks like in 3D by clicking the [ ] or [ ] button. They can 'walk around' using the arrow keys. Then, click the Stop button to go back to the 2D view.

5. Discuss the use of images within the game; is it alright to take images from an Internet search? In unit 5.2, pupils learnt about using citations and altering images. You could suggest that any citation be recorded to incorporate into the introduction/title screen that they will be creating in a later session.

6. Pupils should experiment with the technique of adding a sky, ground, ceiling, and walls and with uploading images.
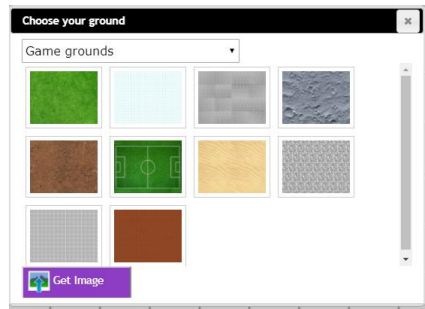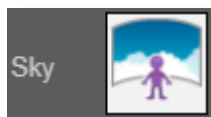
To add ground

The ground can be drawn using the painting tools or you can select ready-made grounds or upload your own images.

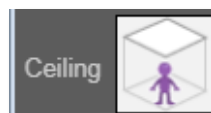Click for the painting tools and draw directly onto the game area or click

Choose from the in-built examples

or click the button to upload your own images.

To add sky
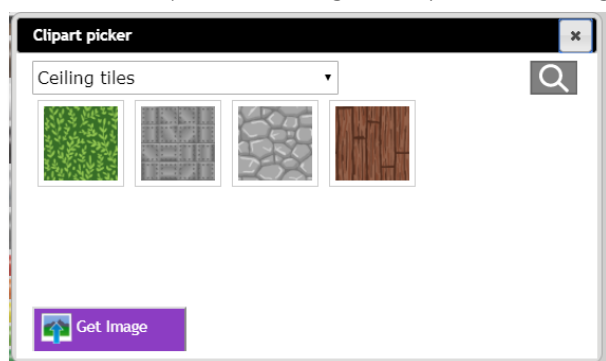

Click   and select the sky style you like.

To add a ceiling

Click   then either; draw a ceiling tile design, click on the clipart picker to select a ready-made design, or upload an image from your device.


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To add walls

Click to add walls to the environment. The default walls are wooden. In My Game

mode, there can be two different styles of walls. Use the to add another style of walls.

You can select other designs or design your own walls by clicking on the pencil icon that

appears on the button . There are some ready-made walls to select from in the clipart

picker or you can upload an image from your device.
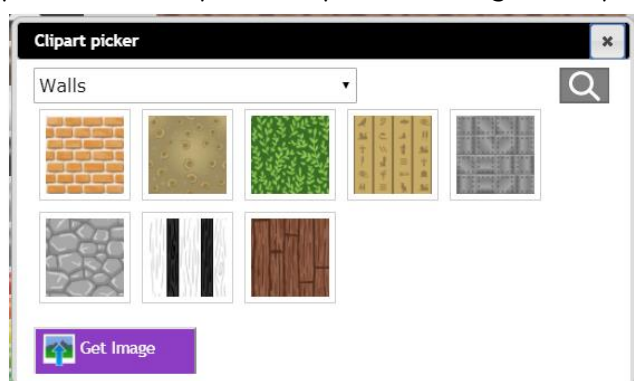
Then 'draw' on the ground to make the walls.

To remove walls, click then on the walls you wish to remove.

When designing the layout of the walls, the game route itself will need careful thought. Encourage pupils to think about the playability of the game when they design the walls. They might want to look at the example games to help them decide what works well in layout and what does not. The start position of the 'player' does not have to be at the centre of the screen, drag the player to a different position if desired. This might be relevant when designing a game with a route.

Scenery, Water and Fire/Lava

You can add scenery items to the environment by clicking or . Scenery are stationary objects like the walls, but you can see through to the other side of them.

You can add areas of water by clicking . Water cannot be crossed in the game but can be seen over to the other side. You can edit the colour of the water using the pencil icon

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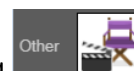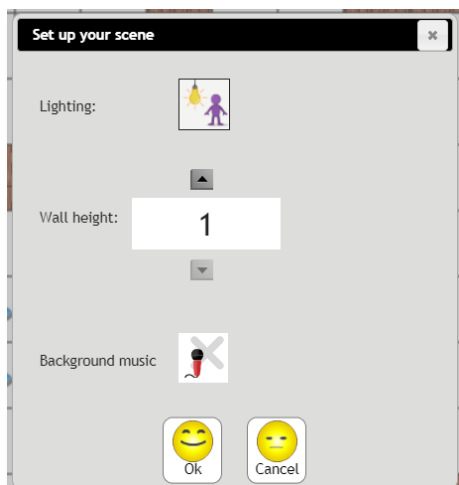You can add areas of fire/lava by clicking . For each square of fire/lava that the player enters, they will lose half a life. You can edit the colour of the fire using the pencil icon.

Other Options

You have a few extra options to set your scene accessed by clicking These are:

Pupils should experiment with these and see what makes the best game for them. If there is time, they could record their own background music using a microphone.

7. The centre page of the leaflet has space for screenshots. The best way to do this will be determined by which platform you are using 2DIY 3D on. See the Tips for Taking Screenshots document for details.

    In the design leaflet, click on the green arrow in an image box of the design leaflet then locate the image file on your device and click Open. There are controls to rotate and zoom in on parts of an image on this screen. Then, when you are happy with the image, click Choose.
    You can make your design leaflet interesting and informative with screenshots of the game in 2D and 3D.
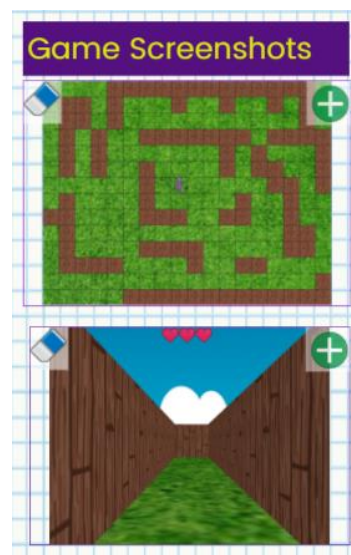
Extension: See next page.

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Extension:

Success Criteria: Pupils can upload images or use the drawing tools to create the walls, floor and roof.

Challenge pupils to include at least one element that has been taken from the Internet (citing the source) and manipulated, and at least one other element that they have drawn; and to justify their reasons.

- Why did they choose to draw the particular element? (no suitable image available / had a specific idea in their head / was easy to create / etc)

- Which app did they use to manipulate the image? (2Paint / 2PaintAPicture: eCollage or Pattern work well)

**Extra challenge option: Can the image be made to tesselate? **

Or
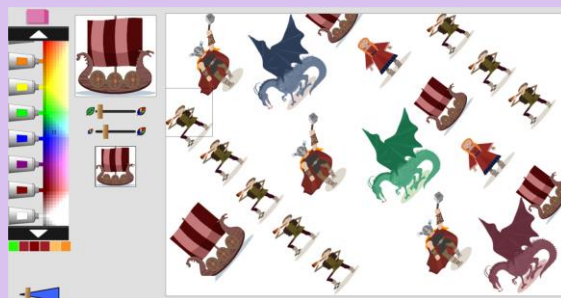
- Why did they choose to take a particular element from the Internet and manipulate it? (fitted their theme perfectly / nothing in the clipart bank / too hard to draw / etc).
- Where are they going to attribute their Internet images? (Introduction screen or bottom of image).

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Lesson 3 – Creating the Game Quest

Aim

- To design the game quest to make it a playable game.

Success criteria

- Pupils can design characters for their game.
- Pupils can decide upon, and change, the animations and sounds that the characters make.

Resources

- Planning leaflet from last week to continue.

Activities

1. Work on making the game 'playable'.

- Design the quest items/treasure to look appropriate for the theme. Some pupils may wish to use more than one design, but they will need to think about how this might confuse the player and ensure playability.
- Pupils will probably want to try out different combinations of movement and action and see the effect in 3D. The movement of animated items can be tracked using the map that appears in the top right-hand corner when the game is being played. Add just one item at first to determine the effect.
- Decide on options, such as points awarded and sound effect when the item is collected.
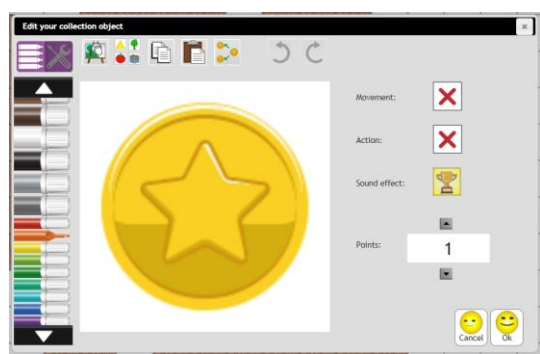
- To duplicate one design to all items, use the button on the design screen.

If pupils add images that they have downloaded, they will appear with a white background. Watch 'How to get rid of white background' in the video for details of how to do that.

2. Once the items have been added, pupils should complete the section of their leaflet called 'The Quest items'. The 'Think about' box gives some hints about what to include in this section.

3. Next, add and edit the obstacles. Explore all the options.

4. Once pupils have added their baddies, they should fill in the 'Obstacles' section of the leaflet.

5. There is a space in the leaflet for pictures of the quest items and the obstacles.

Extension:

Success Criteria: *(from the exceeding section of assessment guidance)*

> The game creator evaluates and reviews their game during the process and makes amendments where necessary and justifies their edits verbally

- Pupils should give reasons for their choice of all the elements within their game.
- If they have kept the scenery images, collectable items and the enemies as the default settings why is this?
- Does it fit with their game story? What would make be a better scenery image, collectible item, and more relevant enemy within their game story?
- Have 'fire' and 'water' obstacles been included? And if so, do the colours match with the story of the game? For example, green fire could look like radioactive gloop, whilst tan coloured water could look like sinking sand.
- Pupils should review their work and change the style, look and colour of the elements to fit more within their game story.

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Lesson 4 – Finishing and Sharing

Aim

- To finish and share the game.

Success criteria

- Pupils can make their game more unique by selecting the appropriate options to maximise playability.
- Pupils can write informative instructions for their game so that other people can play it.

Resources

- Planning leaflet from last week to continue.

Activities

1. There are a few options that pupils still need to decide upon before their game is finished.

- Click on the ![button] button so set up an Instruction screen. Talk through the following options with the class, then give them some time to set them.
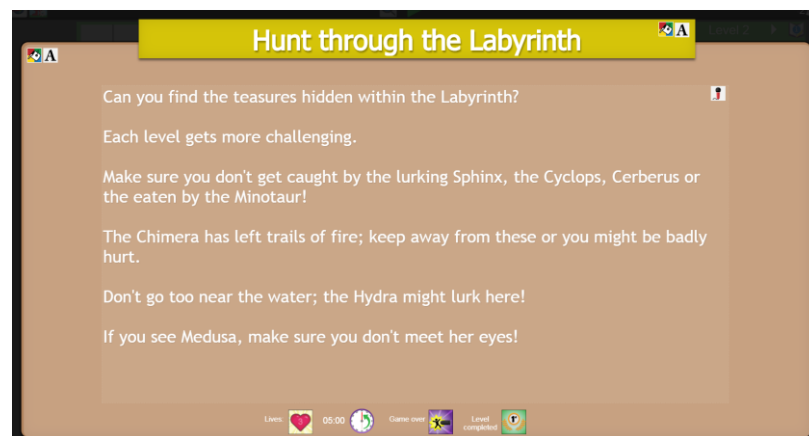
- Click in the text areas to add a title and instructions as required.
- Use the ![icon], ![A] and ![mic] buttons to change the background colours, text fonts and size and to add a recorded instruction.
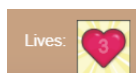
Lives: Allows you to set the number of lives the player starts with (up to 5).

10:00 Allows you to set the time limit for the game.
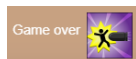
Game over Allows you to set a sound to play when the game is over because all lives are lost.

Level completed Allows you to set a sound to play when the player completes a level.

2. Pupils should then fill in the 'Instructions' section of the leaflet. There is space for a screen print of the instruction screen here.

3. Next, show pupils how to share their game so that others can have fun with it and evaluate it.

    The easiest way to carry out peer evaluation is to use 2Blog to create a class blog where each child in the class has write access; they can then write a blog post and attach their game. Other pupils will be able to comment on the game on the blog post.

    Pupils can also share their game with others by creating a share link (to paste into email or a document) or submitting to a school display board.

    To do this, click on the Share button. See the [Share link Guide](#) for further information about sharing if you need it.

    Pupils should use one of these methods to create a link for their game and share it with at least one other child.

4. There is also space on the back of their leaflets to insert a QR code. This means that if you print and display the leaflets, you have an interactive display where viewers; such as parents can scan the QR codes with a device such as a tablet with a QR reader app and play the game. This works without having a Purple Mash login.

    To do this, create a QR code using the button and selecting 'Share', then the 'Link & QR code' tab. Right-click on the QR code image and save this image to your device. Add it to the leaflet in the appropriate place. (**Note**, if the game is subsequently renamed or moved then the QR code will need to be recreated.)

5. Pupils who finish this, could watch the video 'Levels' and add another level. They must remember to update the instruction screens to explain the levels as each level has its own instruction screen.

Extension:

Success Criteria:

Pupils can make their game more unique by selecting the appropriate options to maximise playability.

- Pupils should evaluate their game, being critical of how it could be made more challenging and atmospheric. In lesson 2, pupils were introduced to options to alter the look of their game. Have these been used to enhance the game?
- If the game is underground/indoors could the lighting be altered to represent this?
- If the game involves tunnels or high-rise city buildings could the wall height be altered to reflect this?
- Does the background music fit into the theme of the game? If not, pupils could create and record their own background sounds.
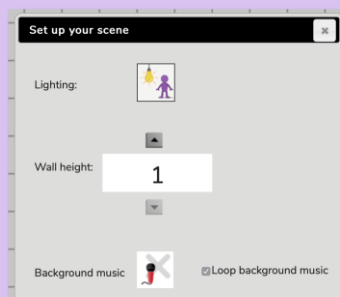
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Ask pupils to play their game and note how long it takes them to complete it – do they need to make any changes to the settings on the information screen to make the challenge harder for players?
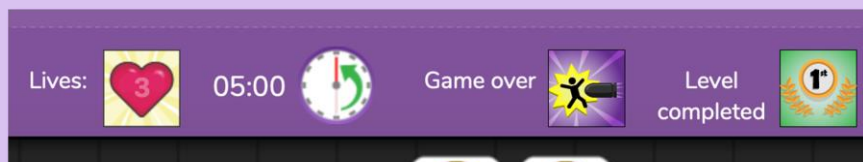
Can the game be completed with many lives left? Could this be altered to become more of a challenge?

Is there a lot of time left over once the game is complete? Could this be reduced to add a challenge

Lesson 5 – Evaluation

Aim

- To self- and peer-evaluate.

Success criteria

- Pupils can evaluate their own and peers' games to help improve their design for the future.

Resources

Unless otherwise stated, all resources can be found on the [main unit 5.5 page](#). From here, click on the icon to set a resource as a 2do for your class. Use the links below to preview the resources; right-click on the link and 'open in new tab' so you do not lose this page.

- Planning leaflet from last week to continue.
- (Optional) [Game Review](#) activity set as a 2Do.
- (Optional) [Game Box Design](#) or [Gaming Magazine Cover](#) set as a 2Do.

Activities

1. The method that you use for your pupils to review each other's games will depend upon how pupils shared the games last week. 2Blog enables pupils to play and then comment on each other's work (you could turn the teacher approval requirements 'off' for the lesson to enable free flowing communication). Display boards allow pupils to play each other's games but not comment. Other sharing methods will require pupils to send each other the link to their game e.g. by email.

   Choose a method that works best for your class.

2. Pupils should evaluate someone else's game using the categories from the leaflet or using the [Game review activity file](#). They should send this feedback to the person whose game they reviewed. Remind pupils of the need to be positive and considerate in their feedback.

3. Pupils can then use the feedback to fill in the Evaluation section of their own leaflet.

4. To complete the design and development process, pupils could then use the feedback to refine and improve their game.

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5. They could also extend this activity by using one of the templates (Game Box Design or Gaming Magazine Cover) to design a box for their game or design the front cover of a magazine in which their game is to be featured.

Extension:

Once pupils have evaluated the feedback given to them and improved their game they can open the blank slideshow template in Purple Mash and create an 'advert' for their finished game that includes;

- Screengrabs from exciting, key moments within the game.
- Audio of how to play the game and the story behind the game.
- 'Testimonials' from classmates who have played the game and left feedback.
- Save the slideshow and then play as a presentation to audience

Tips for Taking Screenshots

The way that you take and save screen shots to upload to your planning document will depend upon the device that you are using. Choose the correct steps below:

If you are using a PC or laptop

One way to create these is to use the Windows Snipping Tool (type 'snipping tool' in the search bar on your computer to locate this or click the following keys together: Windows key + Shift + S). This enables you to capture a section of the screen and save it as an image file.
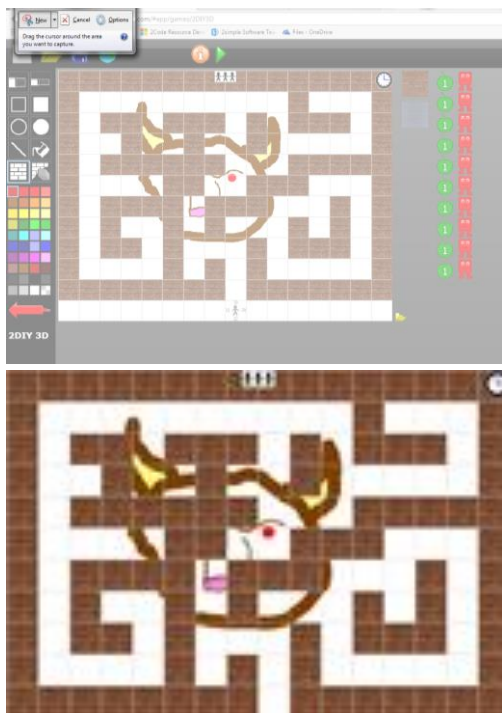
Another way is to press the 'Ctrl' and 'PrtSc' keys at the same time. This copies an image of the active screen to your computer clipboard. You can then press 'Ctrl' + 'V' to paste the image into another program such as a Publishing program, crop the image and then right-click on it to save it as a new image to your computer.

If you are using a tablet

Different brands of tablet have differing methods for taking a screenshot. The images will be saved to your photos app. Here are the most common examples but you might need to look up the correct method for your device.

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iPad -press the home button and the power button simultaneously.

On most Android tablets – press the power and down volume button simultaneously.

You will then want to crop the image to show just the portion of the screen that you want.
You can do this in the photo app.

Assessment Guidance

The unit overview for year 5 contains details of national curricula mapped to the Purple Mash Units. The following information is an exemplar of what a child at an expected level would be able to demonstrate when completing this unit with additional exemplars to demonstrate how this would vary for a child with emerging or exceeding achievements.

Assessment Guidance	
Emerging	When creating their games, pupils think about the component parts and design these as components in a theme rather than completely isolated parts. They increase playability through trial-and-error methods rather than a planned strategy for the design. With support and in small groups, pupils can use a given success criteria to verbally review and analyse what makes a successful computer game (Unit 5.5 Lesson 1. Point 2). When creating their own game, limited consideration is given to the end user, but the game does demonstrate simple functionality (Unit 5.5 Lesson 2/3). Furthermore, pupils can say what they like and do not like about a game (Unit 5.5 Lesson 5).
Expected	Most pupils can plan a Computer game (2DIY3D) using a template. They carefully use the 'Think about' feature in the planning templates to assess their progress against the tasks and how well they have considered key criteria (Unit 5.5. All lessons). When creating their games, pupils think about the component parts and design these as components in a theme rather than completely isolated parts. They consider aspects such as the movement of the characters and goal objects to increase playability. When designing the game environment, they do this with the end-user experience in mind. Most pupils can combine text, sound, and graphic components within a 2DIY3D game. Their games demonstrate a well-planned approach, with appropriate use of text, sound, and graphic components. They easily mix their approaches for image use such as uploading and using the drawing tools. Successful application of animation features to objects is applied to enhance their games (Unit 5.5. Lessons 2, 3 & 4). Pupils can use a given success criteria to review and analyse what makes a successful computer game (Unit 5.5 Lesson 1. Point 2). Pupils consider the end user of their game by designing appropriate settings and characters that maintain the user's interest and engagement levels (Unit 5.5 Lesson 2/3). Furthermore, pupils demonstrate the ability to objectively review and evaluate a range of completed games (Unit 5.5 Lesson 5). Pupils can evaluate their own and others' games with 2DIY3D for content and design. They use this peer and self-assessment opportunity to make improvements to their own game (Unit 5.5. Lesson 5). Feedback which focuses on the design elements of their game against key criteria such as playability,

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	challenge, engagement, use of advanced features and suitability for intended audience.
Exceeding	Pupils think about the entirety of their game at the design stage and are able to consider the game environment, objects and characters and the interactions of these components and their impact on playability to design a good end-user experience before proceeding with the construction stage.
	Pupils demonstrating greater depth can create their own success criteria to review, analyse and verbally justify what makes one computer game more successful than another (Unit 5.5 Lesson 1. Point 2). Throughout the design and creation of their game, the needs of the end user have been considered. The game creator evaluates and reviews their game during the process and makes amendments where necessary and justifies their edits verbally (Unit 5.5 Lesson 2/3/5).