

Foundation Subject Medium Term Planning

Subject: Computing	Concept/Theme: Creating Media	Year Group: Year 5	Term: Summer 1
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Vocabulary:		End of Unit Milestones:	
search engine	A search engine is a software system that carries out web searches in a systematic way	<ul style="list-style-type: none"> • I know how to create my own 19th century animation toy • I know and can explain what 'stop motion' means • I know how to plan my stop motion video, thinking about the characters I want to use • I know how to create a stop motion animation • I know how to edit and assess my stop motion animation • I know how apps can access our personal information and how to alter the permissions 	
CEOP	CEOP is the Child Exploitation and Online Protection Centre. It is an online website to help keep children and young people safe.		
onion skinning	Onion skinning feature allows the last frame to be seen when creating the next frame. This way, the animators can see how far they need to move or position the object from the last frame.		
still images	A still image is a single static image		
moving images	An image which has, or is created to give the impression of, movement. e.g. a gif		
thaumatrope	a thaumatrope is a disc with an image on each side which is attached to two pieces of string. When the strings are twisted quickly, the two images appear to blend into one.		
zoetrope	A zoetrope is a cylinder, which has a series of still images placed on the inside. On the outside, there are slits that someone can look through. When someone spins the cylinder and looks through the slits, it gives the appearance of a moving image.		
frames animation	Frames animation are still images that appear as a moving image when they are shown one after another at high speed.		
stop motion	Stop motion is a form of animation where a combination of still images are put together to create the illusion of a moving image created using a camera on a digital device.		
Prior Learning: Year 4 Term: Spring 1		Future Learning: Year 6 Term: Spring 2	
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Week One	
<p>Objective:</p> <ul style="list-style-type: none"> I know how to create my own 19th century animation toy 	<p>Success Criteria:</p> <ul style="list-style-type: none"> I know and can explain what 'animation' means I know the history of animation
Learning And Teaching	
Outcomes <i>(what is in books, any computing/photo/video evidence etc and where it is to be saved)</i>	
<p>Key Vocabulary: still images, moving images, thaumatrope, zoetrope</p> <p>Know More Remember More: Verbally ask questions, children scribe answers on their whiteboards.</p> <ul style="list-style-type: none"> What is an animation? <p>Display slide 2 of the <i>Presentation: Animation explored</i> to discuss the Learning objective and Success criteria. Presentation: Animation explored Display this on your interactive whiteboard</p> <p>Slides 3: introduce the concept of 'animation' to the children and discuss the key vocabulary: still images, moving images and animation. Discuss how animation in children's toys was hugely popular during the 19th century. Slide 4: introduce thaumatropes to the children. Explain that a thaumatrope is a disc with an image on each side which is attached to two pieces of string. When the strings are twisted quickly, the two images appear to blend into one. Use the video: 'Bird and cage thaumatrope' on VideoLink to show a working example. Slide 5: introduce the children to the term 'flip books'. Explain that the first flip book appeared in 1868 when it was patented by John Barnes Linnett, under the name 'Kineograph'. Tell the class that a flip book is a series of still images with slight movement between each page, which gives the illusion of a moving image. Use the video: 'Pencil flip book' on VideoLink to show a working example. Slide 6: finally, introduce the children to a zoetrope. A zoetrope is a cylinder, which has a series of still images placed on the inside. On the outside, there are slits that someone can look through. When someone spins the cylinder and looks through the slits, it gives the appearance of a moving image. Use the video: 'Zoetrope replica optical toy' on VideoLink to show a working example.</p> <p>Key questions</p> <ul style="list-style-type: none"> What is animation? Have you ever seen a thaumatrope/ flip book/ zoetrope? Can you predict what the animation will show? How do small movements help the animation? 	<p>Upload a photograph of the completed task sheet to Google Classroom. Creating a toy with simple images with a single movement.</p> <p>Topic: Summer 1 – Creating Media Assignment: Lesson 1: Stop Motion</p> <p>Pupils needing extra support: Should focus on developing the <i>Activity: Thaumatrope template</i> animation.</p> <p>Pupils working at greater depth: Can add two objects/characters to their design of a zoetrope or flip book.</p>

Slide 7: share the activity with the children. Get the children into pairs and ask each pair to discuss which toy they would like to make and the animation they would like to create for the toy. Discuss the importance of simple images to use for their animation rather than anything too complicated.

Slide 8: once the children have decided on their activity, hand out the appropriate task sheets and resources.

Key questions

- Which toy would you like to create?
- What animation will you show?
- How will you make sure your animation is fluid?
- Have you tested your animation?

Slide 9: ask children to walk around the classroom and try out the different toys, asking themselves:

- Can I predict what the animation will show?
- Did any animations surprise me?

Ask the children to discuss their experience of creating their own toys, asking themselves:

- Was the animation toy easy to create?
- Was it easy to make the animation movements small?
- How did I ensure the object was in the correct place on each image?
- Did I encounter any other problems?

Key questions

- Can you predict what the animation will show?
- Did any animations surprise you?
- Was it easy to create?
- Was it easy to make the movements small?
- How did you ensure the object was in the correct place on each image?
- Did you encounter any other problems?
- Which toy did you like the look of the best and why?

Week Two

Objective:

- I know and can explain what 'stop motion' means

- I know take photos of an object
- I know how to make small changes to my object between each photo
- I know how to follow the steps in using an editing piece of software

Learning And Teaching	Outcomes <i>(what is in books, any computing/photo/video evidence etc and where it is to be saved)</i>
<p>Key Vocabulary: still images, moving images, thaumatrope, zoetrope, stop motion, onion skinning</p> <p>Know More Remember More: Verbally ask questions, children scribe answers on their whiteboards.</p> <ul style="list-style-type: none"> - What is an animation? - List the similarities and difference between a zoetrope and thaumatrope <p>Display slide 2 of <i>Presentation: Exploring stop motion</i> to discuss the Learning objective and Success criteria. Presentation: Exploring stop motion Display this on your interactive whiteboard</p> <p>Slide 3: recap the content of 'Lesson 1: Animation explored' with the children. Ask the children what animation is. Remind the children of the different toys animation style toys popular in the 19th century: zoetropes, thaumatropes and flip books. Introduce the children to the term 'stop motion animation'. Explain this is another form of animation where a combination of still images are put together to create the illusion of a moving image only this time it is created using a camera on a digital device.</p> <p>Slides 4: play the video: 'Wallace and Gromit - Cracking contraptions' on Video Link and ask the children how they think the video was made.</p> <p>Slide 5: explain that each shot of the film was made by taking a photo of the plasticine characters, then making a tiny movement and taking another photo. The animators can take hundreds of photos for just three seconds of film.</p> <p>Slide 6: watch 12:00 – 17:00 seconds of the video: on VideoLink again and discuss the movements. Wallace's hand moves, his mouth shape changes, he moves his head, the remote control moves, his eyebrow twitches.</p> <p>Explain that every single thing that appears to move has been carefully adjusted between taking two photographs. Introduce the vocabulary 'frame' to the children. Explain each picture taken is called a 'frame'.</p> <p>Key questions</p> <ul style="list-style-type: none"> • What is happening in this film? • How do you think this animation has been made? • Are there actors? (There are voice actors to accompany the actions of the plasticine figures.) <p>Slide 7: explain to the children they will be making their own stop motion animations. Maintain their expectations – they are not going to be able to make something as impressive or complex as Wallace and Gromit yet, they will be using a simple ball of plasticine to create their animations.</p> <p>Show the <i>Activity: Blob animation clip</i> and explain that they will be making their own version of it. The animation is 90 frames long and played at 8 fps (frames per second).</p>	<p>Using a camera to take 24 frames with small movements between each one for their animation. Upload to Google Classroom.</p> <p>Topic: Summer 1 – Creating Media Assignment: Lesson 2: Stop Motion</p> <p>Pupils needing extra support: Should be given help to make small, simple movements. Encourage them to make mistakes and discuss what they could do to improve.</p> <p>Pupils working at greater depth: Should break their blob into two pieces and try to animate two blobs at a time. Remind them that they will need to move both blobs between every shot and to keep the movements small.</p>

NB. Please ensure *Activity: Blob animation clip* 'video quality' found in the 'Settings' cog is set to 1080p.

Slide 8: discuss issues some of the children may have encountered last lesson with ensuring their object was in the correct place on each picture.

Introduce the term '**onion skinning**' to the children. Explain that the onion skinning feature in stop motion software allows the last frame to be seen when creating the next frame. This way, the animators can see how far they need to move or position the object from the last frame.

Slide 9: introduce the activity to the children. Explain that on average, around 24 frames are needed to create a single second of film animation. Give children time in pairs to discuss how they may create their animation.

Slides 10, 11 and 12: introduce the Stop Motion Studio tablet application (app) the children will be using and how to navigate around the app.

Slide 13: either use the video to show how the app works or live demonstrate from your own tablet.

NB. If you are viewing the video, please ensure the 'video quality' found in the 'Settings' cog is set to 1080p.

Slide 14: explain that there are two rules for stop motion animation:

1. Keep the camera completely still.
2. Try to make the movements as small as possible.

Explain that it can be really tricky to make sure that the camera does not move in between photos, so if it moves a little, just carefully move it back. Discuss how the handy grid reference feature helps position the background in the frame.

In pairs, pupils work with the ball of plasticine, thinking about where they want to move them to or the shape they want to create. They then need to work out how to break this down into stages, so that it happens gradually in the animation – this is developing their 'decomposition' skills.

Move around the class and keep reminding them to keep their changes or movements incredibly small to create a fluid animation.

As they work, ask pupils: What if you squish the plasticine a bit? Can you make your changes really small to make the animation more detailed? What happens if you make the movements too big? (The animation looks shaky and odd).

Extension: Encourage the children to make more than one video and see if they can improve on their first attempt.

Key questions

- Does the plasticine move by itself?
- What can you see moving in the first few seconds of the film?
- What if you squish it a bit?
- Can you make your changes really small to make the animation really detailed?
- What happens if you make the movements too big? (The animation looks shaky and odd.)
- How does the onion skinning tool help you?

Slide 15: ask children to swap devices with another pair to view their animations and consider the following questions:

- Were the movements small?

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<ul style="list-style-type: none"> • Did the animation seem smooth? • Were the frames clear? <p>Slide 16: finally, ask the children to discuss their experience of using the software:</p> <ul style="list-style-type: none"> • Was it easy to make the movements small? • Did you find the onion skinning tool useful? • What other problems did you encounter? • Did you find out anything else you could do with Stop Motion Studio? <p>Key questions</p> <ul style="list-style-type: none"> • Were the movements small? • Did the animation seem smooth? • Were the frames clear? • Was it easy to make the movements small? • How could you make sure the tablet doesn't wobble very much? • Did you find the onion skinning tool useful? • What other problems did you encounter? • Did you find out anything else you could do with Stop Motion Studio? 		
<h2>Week Three</h2>		
<p>Objective:</p> <ul style="list-style-type: none"> • I know how to plan my stop motion video, thinking about the characters I want to use 	<p>Success Criteria:</p> <ul style="list-style-type: none"> • I know how to work collaboratively with others to plan a storyboard for an animation • I know how to think carefully about keeping my animation idea simple • I know how to decompose my story into smaller parts 	
<h2>Learning And Teaching</h2>		<p>Outcomes <i>(what is in books, any computing/photo/video evidence etc and where it is to be saved)</i></p>
<p>Key Vocabulary: still images, moving images, thaumatrope, zoetrope, stop motion, onion skinning</p> <p>Know More Remember More: Verbally ask questions, children scribe answers on their whiteboards.</p> <ul style="list-style-type: none"> - What is an animation? - List the similarities and difference between a zoetrope and thaumatrope - How does the onion skinning tool help you create a smoother animation? 		<p>Upload your storyboard to Google Classroom.</p> <p>Topic: Summer 1 – Creating Media Assignment: Lesson 3: Stop Motion</p>

Display slide 2 of *Presentation: Planning my stop motion project* to discuss the Learning objective and Success criteria.

Presentation: Planning my stop motion project

Display this on your interactive whiteboard

Slide 3: recap the content of '[Lesson 2: Exploring stop motion](#)' with the children, reinforcing the key vocabulary. You may also want to use this time to share a few of the animations that the children created in the last lesson.

Slide 4: watch '[Making of - National Trust and Wallace and Gromit](#)' on Video Link, where the creative director, Merlin Crossingham, discusses how the Wallace and Gromit team created a one-minute animation for The National Trust.

Slide 5: Ask the children to discuss how the animation is created, i.e. they have to create a sketch of the animation before they can start planning it. Discuss how the process of breaking this animation down is called 'decomposition'.

Key questions

- How was the animation created?
- Why was it useful to have a storyboard plan first before starting their animation?
- Did anything surprise you about how the animation is created?

Slide 6: ask the pupils to get into groups of four and explain that they will be creating a storyboard for an alien adventure animation.

Slides 7 and 8: Ask the children to think of some ideas for their animation. Everything they want to include in their animation has to be made out of plasticine or found within the classroom, so remind children to keep things simple and not over-complicate their characters.

Give children time to get in their groups and think about what their animation could be about. Bring the class back together and share ideas.

Slide 9: show pupils the *Activity: Storyboard example*. Discuss how the storyboard has been put together. Explain that they do not need to sketch each frame like in Wallace and Gromit; they need an overall plan about what will happen in their story.

Slide 10: give pupils an *Activity: Storyboard worksheet* to work with (there are two versions, one with spaces just for drawings for any pupils who struggle with writing). Once children have planned their story, ask them to start thinking about how to design and create their characters, reminding them that simple is better – their alien could be a snake with spikes on his back or a triangle with eyes. They also need to be prepared for models getting dropped or damaged, so the easier they are to rebuild, the better. Once the children have planned their characters, give them plasticine to start building them. Make sure that the models are carefully stored after the lesson because they will be needed for the following two lessons.

Key questions

Pupils needing extra

support: Give the children an idea to work on and work together to decompose into a storyboard. Use the *Activity: Storyboard worksheet support version*.

Pupils working at greater

depth: Should take a lead in their group animation.

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<ul style="list-style-type: none"> • What will your animation be about? • Will you use one or two objects? • How will you ensure you create small movements? <p>Ask children to present their story ideas, explaining how they plan to animate them. Slide 11: To end the lesson, show the 'National Trust and Wallace and Gromit - Jubilee bunt-a-thon' on VideoLink.</p>	
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Week Four	
<p>Objective:</p> <ul style="list-style-type: none"> • I know how to create a stop motion animation 	<p>Success Criteria:</p> <ul style="list-style-type: none"> • I know how to create a simple animation following my storyboard plan • I know how to change my plan to recognise when something is too difficult to animate • I know the importance of keeping the camera still and making small movements between shots
<p>Learning And Teaching</p>	<p>Outcomes <i>(what is in books, any computing/photo/video evidence etc and where it is to be saved)</i></p>
<p>Key Vocabulary: still images, moving images, thaumatrope, zoetrope, stop motion, onion skinning</p> <p>Know More Remember More: Verbally ask questions, children scribe answers on their whiteboards.</p> <ul style="list-style-type: none"> - What is an animation? - List the similarities and difference between a zoetrope and thaumatrope - How does the onion skinning tool help you create a smoother animation? - What is the process of breaking an animation down called? <p>Display slide 2 of <i>Presentation: Stop motion creation</i> to discuss the Learning objective and Success criteria. Presentation: Stop motion creation Display this on your interactive whiteboard</p> <p>Slide 3: get the children into their groups from 'Lesson 3: Planning my stop motion project' and hand out the children's completed <i>Activity: Storyboard worksheets</i> and objects. Remind children that when solving a problem, it is best to break it into smaller parts or decompose it, which is what we have done with our storyboards. We have decomposed our animation film idea to make it easier to film.</p>	<p>Upload your Stop Motion to Google Classroom.</p> <p>Topic: Summer 1 – Creating Media Assignment: Lesson 4: Stop Motion</p> <p>Pupils needing extra support: Can be in charge of referring back to their storyboard to make sure their group tells the story through the animation.</p> <p>Pupils working at greater</p>

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Ask the children time to look back through their plans.

- Does the story make sense?
- Can the story be improved?

Give them time to make any further adjustments to their storyboards.

Key questions

- What have you planned in your animation?
- Does it make sense?
- Would you like to make any improvements since the last lesson?

Slide 4: ask the children to access Stop Motion Studio for [Apple](#) and click on the 'New Movie icon'.

In their groups, ask the children to allocate themselves the following roles:

1. Person 1: Holds the tablet steady.
2. Person 2: Presses the record button to take a photograph of the frame once the animators are ready.
3. Animator 1: Uses the onion skinning tool to make a small movement to the main character.
5. Animator 2: Moves the background objects/set or additional character as required.

Slide 5: give children time in their groups to decide who will have each role. The children may decide to swap roles after a certain number of frames have been shot. Emphasise the importance of all the children working together to create a successful stop motion animation.

Explain that they need to photograph at least 24 frames, but the more they can do, the better their animation will be.

Slide 6: Share with the children the top tips for creating a successful animation, such as:

- Take your time.
- Make small movements between each frame.
- Stop and check the frames as you work.
- Delete individual frames that are not needed.

Give the children time to create their animation.

Slide 7: ask pupils to share their experiences of creating their animation. Ask: what did they find challenging about it and how did they overcome any problems?

If time allows, ask few students to share their projects so far.

Key questions

- Did you create what you set out to make?
- What challenges were there?
- How did you overcome these challenges?

depth: Should constantly review the animation to identify any frames that need to be deleted and should include multiple sets or characters in their animation.

Week Five	
<p>Objective:</p> <ul style="list-style-type: none"> I know how to edit and assess my stop motion animation 	<p>Success Criteria:</p> <ul style="list-style-type: none"> I know how to make small changes to my models to make my animation smoother I know how to delete frames I know how to assess my animation
Learning And Teaching	
<p>Key Vocabulary: still images, moving images, thaumatrope, zoetrope, stop motion, onion skinning, frame animation</p> <p>Know More Remember More: Verbally ask questions, children scribe answers on their whiteboards.</p> <ul style="list-style-type: none"> What is an animation? List the similarities and difference between a zoetrope and thaumatrope How does the onion skinning tool help you create a smoother animation? What is the process of breaking an animation down called? Why is important to make small movements between shots? <p>Display slide 2 of <i>Presentation: Editing my stop motion project</i> to discuss the Learning objective and Success criteria. Presentation: Editing my stop motion project Display this on your interactive whiteboard</p> <p>Slide 3: recap 'Lesson 4: Stop motion creation' with children. Tell them that in this lesson they will be looking at how to both edit and extend their animation.</p> <p>Slide 4: remind the children of how the Wallace and Gromit animation was created. Explain that editing is a key process in creating a refined animation. Animators must ensure that each frame shows a small clear movement from the previous frame, and that the background is the same for each frame. This also includes, ensuring that hands and other items are not in any of the frames.</p> <p>Using Stop Motion Studio, show how children how to can delete individual frames in their animation. Emphasise that editing is a continuous process, animators will continually look back over their frames and edit as needed.</p> <p>Slides 5: share the two videos with the children. What is different about them? Explain to the children how the second video has</p>	<p style="text-align: center;">Outcomes <i>(what is in books, any computing/photo/video evidence etc and where it is to be saved)</i></p> <p>Upload their finalised animation to Google Classroom. Complete the Self-assessment sheet and ask them to evaluate their projects and think about what they would do differently if they could start their project again. Upload to Google Classroom. Topic: Summer 1 – Creating Media Assignment: Lesson 5: Stop Motion</p> <p>For pupils needing extra support: Should focus on deleting frames not needed and adding a title.</p>

been extended to create a longer animation scene.

Slides 6: explain the different ways that the children can extend their animations.

Adding extra frames: by adding duplicate frames, the scene will be longer. To copy and paste a frame press on the individual frame and click 'copy' then 'paste'.

Animation speed: press on the setting button and drag the slider along to set how many frames are to be displayed per second.

Duplication: try to encourage children to find a part of their animation that could be easily repeated. This is done by clicking on the first frame, pressing 'select' and dragging your finger across the individual frames you wish to copy. Once you have done this, click 'copy' then 'paste'.

Slide 7: share the activity with the children. Remind children that the intention is to create a fluid animation, slowing down the speed of the frames too much or having too many duplicates of a single image will lose this.

Key questions

- Why is it important to edit your animation?
- Do you need to edit any of your frames?
- How are these two animations different?
- How could you extend your animation?

Which frames could you repeat?

Ask the children to evaluate their animation after each extension to ensure they still have a fluid animation. Let children spend time in their groups editing and extending their animations.

Key questions

- How can you make those frames smoother?
- Is there a way to extend your animation?

Slide 8: once the children have finished their animations, hand out the *Activity: Self-assessment* sheet and ask them to evaluate their projects and think about what they would do differently if they could start their project again.

Slide 9: next, give the children time to present their animations to the rest of the class. Give each pupil a copy of the *Activity: Evaluation sheet* and ask them to write two stars and a wish for one of the films, writing two positive points and one point for development. Model the language the children can use to explain how something could have been done better so that it is done constructively without being unkind.

Finally, ask each group to agree on one sentence that expresses their favourite thing about the film they have seen.

Pupils working at greater depth: Should be able to offer a range of suggestions on how to edit and add effects to their animation and offer constructive criticism in their film reviews.

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<p>Objective:</p> <ul style="list-style-type: none"> I know how apps can access our personal information and how to alter the permissions <p><u>Education for a Connected World – Health, Well-being and Lifestyle</u></p> <ul style="list-style-type: none"> I can explain how and why some apps and games may request or take payment for additional content (e.g. in-app purchases, lootboxes) and explain the importance of seeking permission from a trusted adult before purchasing. <p><u>Education for a Connected World – Privacy and Security</u></p> <ul style="list-style-type: none"> I can explain what a strong password is and demonstrate how to create one I can explain how many free apps or services may read and share private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others. I can explain what app permissions are and can give some examples. 	<p>Success Criteria:</p> <ul style="list-style-type: none"> I know the importance of keeping passwords safe I know that passwords are needed for access to ‘apps’ I know how apps require permission to access private information I know how to alter the permissions apps require 	
<p>Learning And Teaching</p>		<p>Outcomes <i>(what is in books, any computing/photo/video evidence etc and where it is to be saved)</i></p>
<p>Key Vocabulary: CEOP, search engine</p> <p>Know More Remember More: Verbally ask questions, children scribe answers on their whiteboards.</p> <ul style="list-style-type: none"> What is an animation? List the similarities and difference between a zoetrope and thaumatrope How does the onion skinning tool help you create a smoother animation? What is the process of breaking an animation down called? Why is important to make small movements between shots? <p>Get the class to line up outside the classroom door. Starting at the front of the line, ask each child for the password and do not give any hints. If the child gives you an incorrect password, send them to the back of the line. Ask the class to return to their seats and tell them what the password is.</p> <p><u>Key questions</u></p> <ul style="list-style-type: none"> What is the password to enter the classroom? 		<p>In pairs, ask the children to research ‘app permissions’ for three popular companies: Google, Apple and Microsoft. Use the information to create an A5 poster using coloured pens entitled ‘App Permissions’. Upload a photograph of your poster to Google Classroom.</p> <p>Topic: Summer 1 – Creating Media Assignment: Lesson 6: Online Safety</p>

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- Was it easy or difficult to guess the password to gain entry into the classroom?
- Why do we need passwords to access specific things?

Display slide 2 of the Presentation: Online protection to discuss the Learning objective and Success criteria.

Show on your interactive whiteboard Slide 3: ask the children about their experience of trying to guess the password. Explain that just as the children needed a password to get into the classroom, passwords are required when we want to access things online. Ask the children to think of some online examples (email, bank account). Ask the children 'why might we need to enter passwords to access things online?' (We need 13 passwords because we are not there 'in person' and the computer must recognise us to keep our information private and only accessible to us).

Slide 4: ask the children 'should you ever tell anyone your password for your accounts?' (The children should not, their passwords should only be known by them and if needed, their parents).

Slide 5: show the children a few examples of passwords. Get the children to discuss which ones they think are the strongest and which they think are the weakest: Johnsmith (weak) John_smith (weak) Jo4nSm!th (slightly stronger) Be11aEat5Carrots!247 (strong) Slide 6: ask the children why they think 'Be11aEat5Carrots!247' is the strongest password compared to the others. Explain that a strong password is one that contains: At least 15 characters Symbols e.g. @#\$\$% Numbers e.g. 123456 Lowercase letters e.g. abcdef Uppercase letters e.g. ABCDEF Explain that a password should be memorable and personal (something that only you know) but impossible for someone else to guess.

Key questions

- When and where on the internet would you need to use passwords?
- Why do you think people need passwords to access things online?
- Should you ever tell anyone your password(s) Which passwords are weak? And why?
- Which passwords are strong? And why?
- What types of things should be used for a password?

Slide 7: explain that strong passwords can be used for accounts on all electronic devices, such as laptop/desktop computers, tablets, or smartphones. The children will now be focussing on 'apps'. Explain what an 'app' is and which devices the children can access 'apps' on. The word 'app' is shortened from the word 'application' and an application (app) is a computer program. Apps can be accessed on all electronic devices.13

Slides 8-9: ask the children if they require passwords for apps. Explain that passwords are generally required in two ways for apps: 1. At the point of downloading and installing an app, a password is required. 2. When you access an app for the first time, a user profile including a username and a password, is required. Point 2 is the most common form of account protection for gaming and purchasing goods and services.

Pupils needing extra support: Can create a simple poster that illustrates the popular apps that were mentioned in the 'Main event'. The teacher or TA should help the children find the app icons for them to draw onto their poster.

Pupils working at a greater depth: Can develop a 'differences and similarities' comparison between all three companies' 'app permissions' information they research.

Slide 10: explain that apps can either be free or paid for. With a focus on free apps, ask the children which free apps they use on the devices at school or outside of school. Make a list of the apps on the board.

Slides 11-12: ask the children if they know what the word 'permission' means. Take some feedback from the class and explain that 'permission' means the action of allowing something to happen, for example, 'You have my permission to borrow the pencil sharpener.'

Slide 13: get the children to think about why giving permission for something that they own is important. Explain that if you want access to something that is not yours, then you need the rightful owner's permission or consent before proceeding. Ask the children follow-up questions: Do you think apps need permission from us to access any personal information on our devices? What types of personal information would apps need permission for?

Slide 14: Apps (free or paid) require permissions for certain things, access to our photo library, camera, calendar, personal contacts, and location. Explain to the class that these types of information are very personal and you may not wish this information to be viewed or shared with an application as you may not know what they will do with it.

Slide 15: in pairs, ask the children to research 'app permissions' for three popular companies: Google, Apple and Microsoft. The children will be using the information to create an A5 poster using coloured pens entitled 'App Permissions', to be displayed around the classroom. Hand out A5 paper to each pair and place a selection of coloured pens on each table.

Show slide 16: the types of information the children use on their posters can include: How to turn permissions on or off. How to review or change access to information in apps. What the list of the typical information types apps need to access, such as calendar, contacts, location etc. Share the following links with the children, which contain information the children can include in their posters: [14 Link: 'Google - App permissions'](#) [Link: 'Apple - App permissions'](#) [Link: 'Microsoft - App permissions'](#) Allow the children to be in creative control of how they present their findings.

Key questions

- What does the word 'app' mean?
- Which word has been shortened to make the word 'app'?
- Do we require passwords for apps at any point?
- What two types of apps are there?
- Which free apps do you use?
- What does the word 'permission' mean?
- Why are permissions important?
- Do you think apps require permissions from us to access any personal information on our devices?
- What types of personal information would apps need access to from our devices?

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Get the children to circulate the room and view the array of 'App Permissions' posters.

Slide 17: explain to the children that many apps are freely available, however, 96% of these free apps have some sort of in-app purchase available within them. An 'in-app purchase' is something you can buy within an app. Companies have a variety of techniques for in-app purchasing. Use this slide to discuss some of the more popular in-app purchasing options: Special offers: limited offers that customers can buy only at a certain time. Extra lives: the option to purchase lives or objects to help them in their games. Advertisements: the option to pay to halt adverts from appearing and stopping gameplay. Discuss in-app purchase options with the class. Explain that the children should seek advice and permission from a trusted adult if they come across these options when they are using apps.

Key questions

- What useful information did you find out about 'app permissions'?
- Do you know how to change the app permissions settings to protect more of your private information?
- What are 'in-app' purchases?
- Who should you talk to about 'in-app' purchases, if you are not the billpayer?