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| **Animation** | | |
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| Making moving pictures | | |
| **Subject(s):** Art & Design, Computing, History, Science  **Approx time:** 80 - 150 mins, which could be split into two sessions |  | **Key words / Topics:**   * Digital art * Animation * Motion * Technology * Computing |
| **Stay safe**  Whether you are a scientist researching a new medicine or an engineer solving climate change, safety always comes first. An adult must always be around and supervising when doing this activity. You are responsible for:  • ensuring that any equipment used for this activity is in good working condition  • behaving sensibly and following any safety instructions so as not to hurt or injure yourself or others  Please note that in the absence of any negligence or other breach of duty by us, this activity is carried out at your own risk. It is important to take extra care at the stages marked with this symbol: ⚠ | | |
| **Suggested learning outcomes** |  |  |
| * To learn about the history of animation * To recognise how we use technology to help us create art * To use technology to create an animation | | |
| **Introduction** |  |  |
| This is one of a set of resources designed to allow learners to develop their knowledge and skills in Computing and Art and Design. This resource has been developed with assistance from Archives of IT and focusses on the creation of digital art, in this instance animation. The activity involves making a thaumatrope, then investigating stop motion animation, facilitating learners to create their own animation on a science topic. | | |
| **Purpose of this activity**  In this activity learners will develop an understanding of animation and produce two different forms of animation.  This activity could be used as a main lesson activity, to introduce the concept of digital art and increase understanding of methods of animation. Alternatively it could be used to introduce or reinforce graphics skills or, by selecting an appropriate topic to address as a class, to reinforce learning of a science topic. | | |
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| **Activity** |  | **Teacher notes** |
| **Introduction and making a thaumatrope? (20-40 minutes)**  Teacher to introduce the first part of the activity, making a thaumatrope, using slides 2-4 in the presentation.  Discuss and explain Thaumatrope and Zoetrope, how they work and how they helped pave the way for the animations we see today.  Teacher to demonstrate steps shown below and on the presentation. Learners to then follow these steps to produce their own thaumatrope.   * **Draw** your images – Draw two different images on circular paper. Ensure the paper is the same size and use images that will work well together, e.g. fish and fishbowl. * **Colour** – Use coloured pens/pencils to colour in the two images. * **Stick** together – Stick the two images together back to back, with a craft stick or straw between. * **Spin** - spin the finished thaumatrope between hands once complete and watch the animation come to life!   **History of animation (5-10 minutes)**  Teacher to explain how thaumatropes link to animation and why they are used, for example for storyboarding ideas. Teacher to overview the history of animation using slide 5 of the presentation and how technology has helped this.  **Introduction to Stop Motion (10-15 minutes)**  Learners watch the two videos on stop motion animation (links on slides 6 and 7). After the first video, ask if learners know what kind of animation it is or how it is made.  **Making an animation (45-85 minutes)**  Following the instructions on slides 9-13 of the presentation, learners create an animation:   * **Step 1 - Story Mountain: i**n small groups get the learners select a topic and map out the visual element of their animation. * **Step 2 - Recording:** Watch the video on slide 11 which demonstrates how to do this. * **Step 3- Adding Audio:** Watch the video on slide 12 which demonstrates how to do this. Learners will then need to create their script, select a narrator and record it. * **Step 4- Editing:** Learners review their animation and edit it if required. |  | This could be delivered across two separate lessons, one focussing on the thaumatrope, with the practical activity carried out as individuals, and the other focussing on stop motion animations, carried out in small groups.  **Making an animation**  The example in this presentation used the free app: Stop Motion Animation. Alternatives (of which there are many, available through the play store or apple store) include Stop Motion Studio, Life Lapse Stop Motion or Onion Cam2.  The focus topic could be selected by the teacher or learner – there are suggestions for science topics on slide 8 of the presentation.  NOTE: It is not advisable to split recording between sessions, as learners cannot easily create the same step-up twice.  When recording the commentary in school, as there may be multiple recordings (on multiple devices) being made concurrently by different individuals, consideration should be given to the location – can these be distributed between different areas of the classroom (or even the school, if appropriate)? Can directional microphones be provided? Is an audio-visual classroom available in school with individual booths (for example, in the languages area) or are home-made ‘sound booths’ (from large cardboard boxes lined with foam) an option?  Step 4 – editing: Learners could rewatch the clip from step 2/slide 11 if they need reminding how to delete frames.  If appropriate consents are in place in school for the display of images on an external website, in particular taking into account GDPR regulations if these include details that identify learners, the school could share the produced artwork with the Archives of IT by emailing it to [education@archivesit.org.uk](mailto:education@archivesit.org.uk). Images sent in this way may be shared by Archives of on their website or via social media |
| **Differentiation** |  |  |
| **Basic** |  | **Extension** |
| * Design the images in advance for learners to colour and decorate. |  | * Create different designs using different images that would work together or by using different media to colour them. * Produce a stop motion film of your selected topic using modelling clay or plastic construction bricks. |
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| **Resources** |  | **Required files** icon-docicon-pdficon-ppt |
| * Paper and colouring implements * Scissors * Straws or craft sticks * Glue sticks * Laptop / tablet with access to appropriate stop motion software. * Modelling clay or plastic construction bricks (optional, for extension activity) * Digital cameras or image capture equipment (optional, for extension activity) |  | icon-ppt Presentation – Animation  icon-pdf Animation storyboard activity sheet  icon-pdf Presentation – Thaumatrope worksheet |
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| **Additional websites** | | |
| * Archives of IT <https://archivesit.org.uk/> * Wikipedia – Thaumatrope: History of the thaumatrope and its link with animation <https://en.wikipedia.org/wiki/Thaumatrope> * Zoetrope in action [<https://www.youtube.com/watch?v=SBg6dAE3mI0>](https://www.youtube.com/watch?v=SBg6dAE3mI0) * Example of a clip from a stop-motion film <https://www.youtube.com/watch?v=NXRkkumEH6E> * How Claymation stop motion films are made [<https://www.youtube.com/watch?v=ydNCj-866_Q>](https://www.youtube.com/watch?v=ydNCj-866_Q) | | |
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| **Related activities (to build a full lesson)** | |
| **Starters** (Options)   * Ask the class to list all the shows or films that they know that include animation or cartoons. | **Plenary**   * Learners share their completed thaumatropes with the class. Discuss what went well and how they could improve their thaumatropes. * Watch the videos from professional digital artists (<https://archivesit.org.uk/>, slide 14 of the presentation) and discuss the jobs they could do in this sector. |

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| **The Engineering Context** |
| * Television and films are the principal application of moving images – many engineers are involved in supporting this industry, ranging from electricity generation to the installation of electrical and lighting systems, to the manufacturing of the devices to capture or view the images. Increasingly, engineers and companies put animations on social media and virtual reality to provide instructions for use or maintenance activities. |

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| **Curriculum links** | |
| **England: National Curriculum**  KS2 Art and Design   * to improve their mastery of art and design techniques, including drawing, painting and sculpture with a range of materials [for example, pencil, charcoal, paint, clay]. * about great artists, architects and designers in history.   KS2 Computing   * select, use and combine a variety of software (including internet services) on a range of digital devices to design and create content that accomplish[es] given goals, including collecting, analysing, evaluating and presenting information * use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour.   KS2 Science  The link will depend upon the specific topic taken by each individual as the focus for their animation. | **Northern Ireland Curriculum**  KS2 Art and design   * Look at and talk about the work of artists … * Use a range of media, materials, tools and processes … to realise personal ideas and Intentions |
| **Scotland: Curriculum for Excellence**  Art and design   * EXA 2-02a: opportunity to choose and explore an extended range of media and technologies to create images and objects, comparing and combining them for specific tasks.   Technologies  Digital Literacy   * TCH 2-01a: extend and enhance knowledge of digital technologies … and organise these in an appropriate way.   Craft, Design, Engineering and Graphics  TCH 2-11a: use a range of graphic techniques, manually and digitally, to communicate ideas, concepts or products. | **Wales: National Curriculum**  Expressive arts   * Exploring the expressive arts … * Creating combining skills and knowledge, drawing on the senses, inspiration and imagination * Cross-curricular skills: digital competence |
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| **Assessment opportunities** | | |
| * Formal summative assessment of completed work by the teacher. * Peer assessment and feedback on thaumatropes produced. | | |
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