SECTION ONE: Project/Lesson Overview

Grade: 12

Subjects: Visual and Media Arts (94411)

Lesson Title: Animated Rocks!

Themes: geological processes, video animation, cartoons, stop-motion

Lesson Description and Objectives:

Drawing on the different natural phenomena presented on the "Magnificent Rocks" website (rock cycle, continental drift, tectonic plates, convection currents), students will demonstrate their understanding of one of the phenomena by making a short stop-motion or cartoon film.

In this activity, students will have a chance to explore some of the practices frequently used to produce works of contemporary art: mixed media and new technologies in the media arts. This creative experience will be inspired by the theme of "ecological memory."

Projecting a series of different images illustrating the sequential steps of a movement is a concept used by classical creators of cartoons. This notion has been adapted in contemporary art through the use of new technology. Stop-motion, or animation which uses immobile objects, is an example and will be explored in this lesson.

Time Required: Five to six 60-minute periods

Learning Outcomes:

(Visual and Media Arts)

Appreciate artistic works.

- Learn to express esthetic appreciation while incorporating concepts related to the art world, themes, visual language, and technique with a view to developing analytical skills.

- Associate artistic creations with their respective paradigms.

- Identify techniques used in creating works of art.

Create art collaboratively and independently.

- Integrate concepts related to the art world, themes, visual language, and technique into the artistic creation process.

- Incorporate concepts from 20th and 21st-century art.

- Use various subject-based sources for inspiration.

- Make appropriate use of various aspects of visual language and principles of composition.

- Use proper techniques.

(Transdisciplinary)

Information and communication technology: Use information and communication technology (ICT) judiciously in a range of situations.

- Express ideas using design and word-processing software independently and effectively, and use different software to process image, sound and video.

SECTION TWO: Project/Lesson Implementation

Equipment/Materials Required:

- Computers with access to the Internet and to the "Magnificent Rocks" website
- A variety of objects and modelling clay (Stop-Motion Option)
- Lighting for the mini-studio (table lamp)
- Foam core or other rigid cardboard
- Digital cameras
- Computers
- Video editing software (Movie Maker, iMovie, etc.)
- 30 sheets of white, unlined paper per student (Cartoon Option)
- Lighting to make the paper transparent enough that students can trace an illustration on one page onto another page placed on top of it (if possible, use a window or light table)
- Sharpies

Lesson Procedures/Teaching Strategies:

(Stop-Motion Option)

1- Step One: Background

- The teacher presents the concept of animation:

  - *The technique of photographing successive drawings or positions of puppets or models to create an illusion of movement when the movie is shown as a sequence*

  - *For example, a flip book enables us to see a series of images, one after the other, creating an illusion of movement*

- Stop-motion is a cinematographic technique whereby the camera is repeatedly stopped and started, for example to give immobile objects or figures the impression of movement.

- Example: https://www.youtube.com/watch?v=dNJdJIwCF_Y

2- Step Two: Choosing a Topic

- Students will work in groups of three on the theme of ecological memory. Drawing from the "Magnificent Rocks" website, each group will choose a natural phenomenon to depict in their film.

- The groups will be invited to explore the "Magnificent Rocks" website in order to choose a natural phenomenon that interests them. Examples are:

- Part of the rock cycle

- Continental drift and the movement of continents on the planet

- The movement of tectonic plates (convergence, divergence)

- The effect of convection currents in the Earth's mantle

- etc.

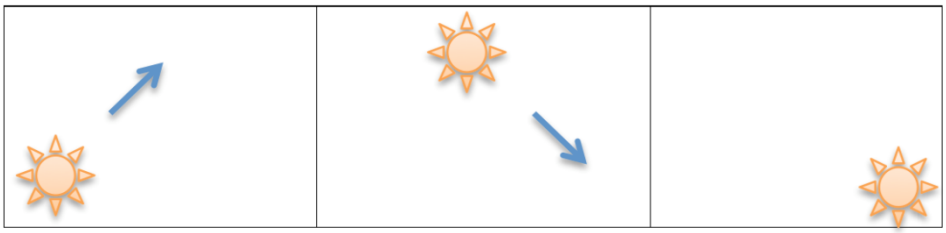
- Once they have chosen one of the phenomena, the students will do additional research to find visual inspiration and to better understand the transformations and movements.

3- Step Three: Storyboard

- Now it is time to create a storyboard. This is a sketch that shows a simplified version of the images illustrating the steps of the natural phenomenon. The use of a storyboard will help students plan their animation projects more effectively.

- Students can use arrows to show the movement being illustrated, instead of drawing every image.

Example:



4- Step Four: Setting Up a Mini-Studio

- Students assemble all the objects and materials they will be using to make their short film.

    - *Modelling clay, for example, can be sculpted and moulded into an infinite variety of shapes!*

    - *A combination of objects and drawings on a whiteboard background is another possibility. Creativity, imagination, and innovation are to be encouraged!*

- They will also choose a space in the classroom they will use as their mini-studio. A surface on which they can place their objects and materials is essential.

- Making a white background with foam core or other rigid cardboard is a good idea, as it will help eliminate visual distractions in the classroom.

    - *Students should still be able to decorate their background, if they want to and time permits, using colours or images. However, the background should remain constant throughout the film.*

- Lighting must also be considered during this phase. It is not necessary to use actual studio lamps. If classroom lighting is not bright enough for all the details to be seen, a small desk or table lamp can also be used as a spotlight.

- Next, a camera should be set up. It needs to stay still throughout the filming. Using a tripod or another platform is a good way to make sure the camera doesn't move.

    - *Make sure the camera is set to properly frame the shot.*

    - *The objects are supposed to move, not the camera!*

5- Step Five: Action!

- Following their storyboard, students can now set up the first scene.

- Once everything is in place, the settings on the camera must be adjusted: make sure that the exposure and focus are correct.

- Take the first photo!

- Now, move/modify the position of the objects or the shape of the modelling clay to show the next step of the movement; this will be the next shot.

- Every time a change is made to the scene, take another photo.

    - *A minimum of 30 photos is needed to properly capture one movement.*

- The degree of change in each successive image is what determines how fluid the movement looks. The smaller the changes, the more fluid the animation. Aim for small movements and changes, only a few millimetres at a time.

6- Step Six: Editing

- Launch the video editing software (Movie Maker, iMovie etc.).

- Import photos, in order, into the program.

- Change the duration of photos to 0.25 second.

- If the images of the film are on a loop, you can cut and paste the sequence of photos up to three times in order to create a continuous loop.

- Add headings and transitions, if you like.

- Save the project.

7- Step Seven: Screening

- Groups are invited to show their short films to the class. A short oral presentation, indicating the subject of the film and the process they used, is encouraged.

(Cartoon Option)

Students who want to explore classical animation techniques for making cartoons can follow these steps. This technique can be used individually:

1- Follow Steps One, Two and Three of the Stop-Motion Option.

2- Students number their blank pages with a lead pencil, in a corner of each sheet.

- A minimum of 30 sheets/drawings is necessary to capture a single movement.

3- Following the storyboard, the student creates the first and the last drawing. In other words, to objective is to establish the starting point and the finished product. If the student has chosen to illustrate a cycle or loop, these two images will be identical.

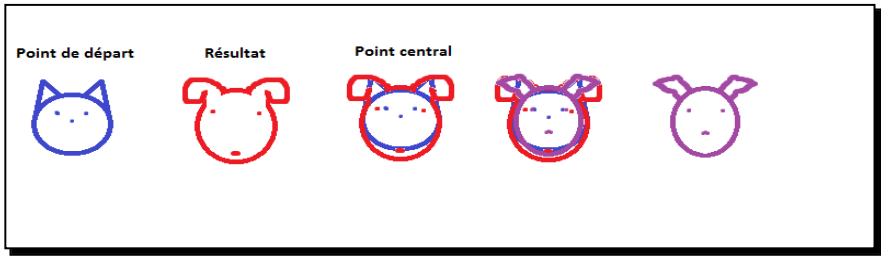
- Example of a loop: the transformation of a magnetic rock to the metamorphic rock stage and back to its initial state as magnetic rock.

4- Using a light source that is bright enough to make the sheets of paper

transparent (window, light table), the student can now trace what he or she thinks is a middle point between the first and last images.

Example:

Starting point *End point* *Middle point*



5- The student continues this process, tracing images to be inserted in the middle of the sequence, until there is a large enough quantity of images to capture the movements fluidly between the starting point and the end point of the film.

6- Once all the drawings are completed, the student will take a photo of each one, making sure the camera does not move. It is strongly suggested that the student use markers to ensure that the images are placed in the same position every time.

- Example of use of markers: trace the outline of the four corners of the first sheet of paper on a surface, and place the other sheets in the same frame every time.

7- Repeat Steps Six and Seven of the Stop-Motion Option.

Suggested Assessment Strategies:

Students should be assessed on their understanding and their ability to illustrate the natural phenomenon they have chosen, as well as their ability to plan and produce a short film. The assessment should be done using a scale developed by the teacher in advance, based on the learning outcomes he or she has set as priorities for the students.

The following criteria are intended as suggestions only:

- Fluidity of movement in the short film
- Creativity and innovation
- Transmission of knowledge through visual means
- Use of the “Magnificent Rocks” website as a source of inspiration at the beginning

Vocabulary:

- storyboard
- short film
- stop-motion

SECTION THREE: Project/Lesson Resources

Supplementary Resources:

Magnificent Rocks:
http://www.nbm-mnb.ca/magnificent_rocks-roches_magnifiques/home-accueil-eng/

Example of stop-motion film with objects and modelling clay:
https://www.youtube.com/watch?v=dNJdJIwCF_Y

Disclaimer:

The online resources recommended in this document have been selected according to their relevance in terms of the age and grade level of the students. However, given that the content of online materials is subject to change at any time, teachers are advised to consult the websites before recommending them to their students.

Extension/Enrichment:

(Other possible activities)

- Students can present their short films to another class in order to offer new learning material for students studying that subject (natural geological phenomena).

SECTION FOUR: Additional Information

Credits: Sophie Auffrey and Sara Waitzer