

Anatomy Browser

Middle School - Journey of a Blood Cell

TERM 2013

LOCATION G+L+S

PROGRAM VideoGames and Learning

Overview of Lesson In connection to learning about the circulatory system and the functions of the heart, students will work together in small groups to create a short animation on the journey of a blood cell through the body.

Materials Needed Textbook / reference materials
Animation storyboard grids
Animation props
Plain paper
Dry erase boards
Markers
Digital camera or Ipad

Optional: Purchase the Stop Motion Studio App from the iTunes store for .99 cents.

Content of Lesson Divide the students into groups of three. Have the students amongst themselves assign the following roles:

Artist- mainly responsible for completing the storyboard sketches.

Writer- mainly responsible for writing and editing the captions of the storyboard.

Director- mainly responsible for getting the ideas from the storyboard on film/executing the production of the clip.

Write the vocabulary terms out so that they are visible to the groups. While each group is encouraged to creatively tell the “story” of the red blood cell’s journey (use props, personification, illustrations, etc.), they must include the vocabulary in their videos.

Before filming, ask the students to collaboratively complete a storyboard for their video. Each box may represent the main points of the story plot and should include a sketch with a short narration (*See examples below*). It may be helpful to hold a quick conference with each group to assess their plan before they begin filming.

Disperse filming equipment and allow students ample time to complete their videos. For those groups that finish quicker than others, have them add voice-over / transitions / special effects using a simple video editing software such as Windows Movie Maker or iMovie.

Have groups present and think reflectively on their creative processes, the selection of props, and what is realistic / unrealistic about the video in comparison to the way the circulatory system actually works.

Example of storyboard:

Example of simple narration:

- *The left ventricle pumps the red (oxygenated) blood cell into the aorta.*
- *The cell travels through increasingly smaller arteries.*
- *It reaches the capillary wall and enters the body tissue to release oxygen to essential organs and tissue.*
- *The blue (de-oxygenated) cell begins its return back to the heart via the body's network of veins.*
- *It reaches the heart and enters the right atrium.*
- *It is then pumped through the pulmonary arteries into the lungs in order to receive more oxygen.*

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- *The red (oxygenated) cell then re-enters the left atrium.*
- *It is then pumped into the left ventricle (Step 1).*
- *The process starts all over again.*

Vocabulary Aorta
Artery
Capillary wall
Carbon dioxide (CO₂)
De-oxygenated
Heart
Left / right atrium
Left / right ventricle
Organ
Oxygenated
Pulmonary arteries
Red blood cell
Tissue
Vein

Assessment Consider assessing students on their individual roles (artist, writer, director) and contributions to the project using a self-assessment rubric as well as assessing the group's collaboration overall and the final project.

Learning Objectives Students will be able to plan a storyboard for their videos including illustrations and captions. Students will be able to use the resources available to them and their creativity to produce a video that demonstrates the journey of a red blood cell. Students will be able to work cooperatively in small groups. Students will be able to apply the vocabulary of the circulatory system appropriately in their videos. Students will be able to reflect on previous experiences (such as the use of Anatomy Browser) while completing classroom activities. Students will be able to follow directions.

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Educational Standards

- (MS-LS1-3)** Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.

- (HS-LS1-2)** Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

- (Literacy.RST.6-8.9)** Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

- (Literacy.RI.6.7)** Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.

- (Literacy.RI.9-10.4)** Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings