So You Think the World Evolves Around You?

By: Cindy Jackson

Grade Level: 7-9
Subject Matter: Science

Canon

Time Allotment: Four 45- minute periods for lesson; one week for student-generated video project

Overview:

A super continent, Pangaea, began to break apart into the modern continents about 260 million years ago, causing the isolation (and separate evolution) of various groups of organisms from each other. Since this event, the living species inhabiting these separate continents have progressively changed. Organisms have learned to adapt through hiding, camouflaging and mimicking other organisms' efforts to outfox potential predators seeking their next meal. Many of these changes can be attributed to the concept of evolution which includes physical as well as behavioral changes.

Using video and Internet resources, students will be able to gain a clearer understanding of evolution by examining its effects as evidenced in amazing adaptations and unusual biodiversity in some of the most remote areas of this world. More importantly, students will learn the secrets of how these organisms find ways to survive. In addition, students will create digital video projects of their own to demonstrate their knowledge, illustrating common evolution in their own world.

Major corporate support is made possible by Canon U.S.A., Inc., and Ford.

Learning Objectives:

Students will be able to:

- Define evolution and its relative impact on the perpetuation of species;
- State various ways in which organisms adapt in order to survive;
- Discover new forms of biodiversity found in various remote regions of the world;
- Clearly define such terms as Pangaea, mimicry, adaptations, natural and sexual selection, analogous structures, convergent evolution and speciation;
- Utilize video, Internet and print resources to research information;
- Work collaboratively to produce a presentation, video or other product.

Standards:

From the National Science Education Standards for Grades 9-12, available online at: http://books.nap.edu/html/nses/6e.html#csa912.

CONTENT STANDARD C: As a result of their activities in grades 9-12, all students should develop understanding of:

- Biological evolution
- Interdependence of organisms
- Matter, energy, and organization in living systems
- Behavior of organisms
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CONTENT STANDARD D: As a result of their activities in grades 9-12, all students should develop an understanding

- Origin and evolution of the universe

CONTENT STANDARD E: As a result of activities in grades 9-12, all students should

develop

- Abilities of technological design
- Understandings about science and technology

Media Components:

Video

Nature #2210 “Deep Jungle” Part I - New Frontiers

Web Sites:

Darwin’s Moth

http://encarta.msn.com/media_461530192_761578331_-1_1/Darwin's_Hawk_Moth.html

The Web site provides further insight to how unique this organism is in the jungle of Madagascar.

Camouflage

http://school.discovery.com/schooladventures/planetocean/light.html

Various marine organisms hide through unique blending with their underwater environments.

Bioluminescence

http://schooldiscovery.com/schooladventures/planetocean/light.html

Using light sources within their bodies, fishes manage to find shelter and food in the darkest parts of the ocean.

Defenses

http://schooldiscovery.com/schooadventures/planetocean/defense.html

Despite their small size, these organisms use clever mechanisms to wart off predators.

Evolution of the Peppered Moth (The English Moth, *Biston betularia)*

http://www.explorelearning.com/index.cfm?method=cResource.dspView&ResourceID=447

This is a useful simulation game to illustrate how the peppered moth changed over time due to environmental alterations.

Evolution- The basics

http://www.pbs.org/wgbh/evolution/library/03/4/1_034_04.html

Difficulties with the concept of evolution can be assisted with this straight-forward, informative Web site.

Camouflage Game

http://www.eoascientific.com/campus/ocean/multimedia/animal_adaptations/view_interactive

The goal of the game is to utilize the characteristics about the fish to place them in the proper area of the ocean to maximize survival.

Pangaea

http://www.tki.org.nz/r/wick_ed/science/crusty.php

Watch the position of the continents change over a period of 200,000,000 years to the current date.

Continental Shuffle
http://atlas.geo.cornell.edu/education/student/continental_puzzle.html
Students can rearrange the continents as they once existed at one time.
Materials

For the class:

- Digital Video camera, at least one per class or more per cooperative groups of students (4-5 students/ group)
- Video editing software
- iMovie, Apple (Mac)
- MovieMaker, Microsoft (PC)
- Optional: tripod, wireless microphone(s)

For each video production team (4-5 students):

- "10 Tips for Capturing Great Video," available to download and print at http://education.apple.com/education/ilife/howto/digitalmovie_tips/
- "Tips for Making your Movie," available to download and print at http://education.apple.com/education/ilife/howto/imovie_tips/

"Sample Storyboard," available to download and print at
http://www.fairfield.k12.ct.us/develop/cdevelop08/storyboard_template.htm

For each student:

- Handout – "Evolution and Its Affects"- Learning Activity
- Handout – "Evolution Video Project" – Culminating Activity

Prep for Teachers

Prior to teaching the lesson, bookmark all of the Web sites used in the lesson on each computer in your classroom. You may also create a Web site with links to each Web resource, or use an online book marking utility like Portaportal (http://www.portaportal.com) or Backflip (http://www.backflip.com) to increase time on task at the computers. Load the Shockwave and Flash plug-ins, available at http://www.macromedia.com, onto all computers in your classroom or computer lab. Cue the video, Nature #2210 "Deep Jungle" Part I to the screen that shows the view of someone rowing down a river in a canoe while the narrator states, "Gavin isn't the only jungle pioneer going for a first."
View the video clip in its entirety to become familiar with all starts and stops. Practice the pauses and fast forwards to insure smooth transitions during viewing.

Copy the appropriate amount of student handouts. Make sure students also have generic note taking materials as needed.

Be sure that video cameras are fully charged and have rewound, writeable DV tapes loaded. If the camera is to remain stationery it is advisable to use a power adaptor when filming and/or have extra batteries on hand. Be sure to have the necessary video editing software loaded on computers and camera-to-computer cables available for downloading video clips.

When using media, provide the students with **Focus for Media Interaction**. The phrase is a specific task indicating to students to complete and/or listen for information during or

after viewing video segments, Web sites, and other Multimedia elements.

Introductory Activity

Setting the Stage

Evolution is an event of science occurring over thousands of years, caused by specific changes. The students will begin the lesson viewing various Web sites providing an insight to the genesis of evolution and how it has altered the existence of organisms over time. Viewing of these segments and the discussions should take less than one classroom period.

Step 1:

In preparation for viewing the first Web site, ask students to hypothesize what Earth was like at the beginning of time, before organisms changed or evolved. Where might the animals exist, either near the North or South of the Earth land mass? Was there competition for food and shelter? Could organisms find mates for reproduction? (*Responses may vary depending on prior knowledge*.) Allow students to record responses for later review. Explain to the students there is geological evidence proving that the seven continents once existed as one large land mass commonly known as a super continent yet over time separated into individual land masses. This event was called Pangaea. Instruct the students that as a result of Pangaea, evolution is an ongoing event due to an animal's separation from each other and the challenge to find the means to survive. Let's learn why evolution occurred by examining how the Earth changed over time.

Step 2:

Ask students to log on to their computers to the Web site, http://www.tki.org.nz/r/wick_ed/science/crusty.php

Provide the students with a **FOCUS FOR MEDIA INTERACTION,** asking them to predict the direction the continents will move on the computer screen as they existed two hundred million years ago. Check for student responses. *(Students' answers will vary.)* Instruct the students to run the simulation. What parts of the world did they not place in the correct area? *(Students answers will vary.)* Proceed to another Web site, http://atlas.geo.cornell.edu/education/student/continental_puzzle.html. Provide the students with a **FOCUS FOR MEDIA INTERACTION**, asking them to place the seven continents in the areas to which they will eventually move. What continents reside next to each other? *(North America is next to South America, Artic and Europe; South America is next to Africa, North America and Antarctica; Africa is next to Australia and Europe and Iceland.)* Ask the students what effect do you think the close proximity of land mass had on where animals finally resided as the land masses separated? (*Animals found in the extremities of the super continent would be land-locked once the continent separated from the larger mass. Those animals could either become extinct because they could not find mates; continue reproducing as they had in the past or find ways to make new species.)*

Step 3:

After viewing the computer simulation, it is evident that the position of the continents on Earth has significantly changed over millions of years. Ask the students if they think the movements of land masses have stopped? (*Some may respond by stating they would not know or be able to make this determination considering Pangaea took millions of years to occur. Some students may state that the continents are still moving.)* To assist

students with their thoughts, a computer simulation of possible land movements would be helpful. Tell the students that the Web site they are about to view is merely a simulation based on the general continental shift which has already occurred.
Ask students to go to the Web site, http://www.classzone.com/books/earth_science/terc/content/visualizations/es0807/es0807page01.cfm?chapter_no=visualization. Provide the students with a **FOCUS FOR MEDIA INTERACTION,** asking them to make predictions of where they think North America might appear after clicking the button for animation. Check for student responses, and then encourage them to click the button moving the continents. Ask the students if North America moved in the direction they proposed. *(Answers will vary; allow for discussion of the computer simulation.)* Explain to the students that if Pangaea never occurred, evolution, as we know it today, would not have occurred. Animals that have never been subjected to environmental isolation would not be forced to adapt to their existing conditions or better yet, form new species. Questions still exists such as, what exactly is evolution? What relevance does evolution have on animals attempting to survive? In what ways can we observe the effect of evolution? These questions and others will be answered by viewing segments of the NATURE episode #2210 "Deep Jungle – Part I" which illustrates how living organisms have adapted to the worlds in which they have been isolated. In addition, students will also view other Web sites to gain a better understanding of evolution. The viewing of these video segments, Web sites and the discussions relating to the media should take two to three classroom periods.

Learning Activity

Step 1
In preparation for the video, provide the students with a visual organizer handout entitled, "Evolution and Its Affects." *(Note to teachers: The visual organizer is arranged in such a way that it follows the lesson from the Introductory activity through the Learning activity by asking questions relating to either the video or Web site. It also will allow the student to develop a relationship between key terms such as evolution, adaptation, biodiversity, convergent evolution, adaptive radiation, natural selection, sexual selection, camouflage, mimicry and speciation.)*

At the top of the visual organizer, allow students a moment to fill in information about Pangaea. (*Pangaea- a super continent which began to break apart into the modern continents about 260 million years ago, causing the isolation of various groups of organisms from each other.)* Ask the students what would happen to animals in isolated continents- Would they continue to live? *(Yes, but they would have to find ways to adapt to the environment.)*

Step 2
Explain to the students now that they have established the basic premise of evolution, ask the students to write their definition of evolution on the handout near the term, "evolution." Check various students for their responses. (*Evolution is the change in a lineage of populations between generations. New species develop from preexisting species over time.)* Ask the students that while this may sound like a simple definition of evolution, how can it be proved in our world today? *(Students may respond by stating that we can observe how the behavior or anatomy of animals allows them to exist into their environments; some students may state they are not sure any evidence exists that animals have adapted to their environment.)* Explain to the students that Charles Darwin,

a famous biological scientist, proposed that evolution could be explained by the differential survival of organisms following their naturally occurring variation – a process he termed "natural selection." If a particular offspring has traits that give it an advantage in a particular environment, that organism will be more likely to survive and pass on those traits (disguising coloration, stronger legs or other unique adaptive features). As differences accumulate over generations, populations of organisms diverge from their ancestors. Let's view some examples of organisms that have evolved due to natural selection.

Step 3
Provide the students with a **FOCUS FOR MEDIA INTERACTION,** asking them to identify and write down any adaptive features found in the video clip. **CUE** the Nature video #2210- "Deep Jungle" Part I New Frontiers to the point where the screen shows of someone rowing down a river in a canoe and the narrator states, "Gavin isn't the only jungle pioneer going for a first." **PLAY** video until the screen shows the scientist Philip de Vries watching a monitor in the dark of the forest waiting for the illusive Darwin's moth to appear. **STOP** video when the screen shows the time of "9:50" and the narrator states, "Its going to be a long night." Check for student responses. Instruct students to write other adaptations they did not include on the handout as they are discussed. (*Adaptations of organisms living in Madagascar might include camouflage coloration, modified tongue for reaching insects and plants, and, brightly colored insects.)* Ask the students what lead Charles Darwin to think there was an unusual organism that would pollinate the comet flower. *(The Comet orchid had an unusually long nectar spur that would require an insect or bird to have unique mouth parts.)* Ask the students what special modifications these orchids have to attract the Darwin moth. *(The orchid releases a steady stream of a scent through the forest to aromatically lure the moth to the flower.)* For further study, teachers might refer to the web site, http://encarta.msn.com/media_461530192_761578331_-1_1/Darwin's_Hawk_Moth.html, for more detailed information about Darwin's moth.

Step 4
Provide the students with a **FOCUS FOR MEDIA INTERACTION** asking them to describe the action of the moth's proboscis into the Comet orchid. **FAST FORWARD** video to the point where Philip de Vries is sitting in front of a monitor, the time is 4:16 AM and the narrator states, "Back in Madagascar, Phil is still waiting for his jungle first." **PLAY** video until the screen shows Phil facing the camera saying, "Never thought I'd live to see that." **STOP** the video. Allow different students to explain their observations. *(The proboscis uncurled and finagles its way into the opening of the orchid.)* Ask the students what would happen to the orchid if Darwin's moth did not exist. *(Some might speculate the orchid would become extinct because it would not be pollinated or perhaps another organism would develop through natural selection to be the orchid's pollinator.)* Explain to the students that this is one example of an adaptation as a result of the moth's and orchid's remote existence in the world. But there are some similarities between the moth and other organism's such as the bat. Let's explore how these two unrelated organisms on different parts of the world demonstrate a common form of evolution called, convergent evolution.

Step 5
Explain to the students that the organisms they are about to observe are indigenous to Central America, in a country called Panama. Provide the students with a **FOCUS FOR MEDIA INTERACTION,** asking them to write reasons how all the species of bats are able to exist in one area of the world. **REWIND** the video to the point when the screen becomes dark and the narrator states, "…but high tech equipment is increasingly being used by jungle researchers to open new windows to hidden worlds." **PLAY** video until the screen fades to black and the narrator states, "This is the jungle. There are countless species all sharing the same three-dimensional world in superbly specialized ways." **STOP** video. Check for student responses. (*The 72 species of bats are able to exist in such a small country due in part, to each species of bat having unique nutritional needs. If all the bats required the same food source, competition would be fierce and some would naturally become extinct. This is an example of adaptation. Also because there are so many species of bats, this suggests speciation occurred. This speciation is the process of a single species becoming two or more species.)*

Step 6
Ask the students why the bats did not simply migrate to other countries where they would not face competition of food. *(The location of Panama is so isolated from other areas of the world that the trip would be overwhelming. These bats were geographically isolated therefore had to find a way to exist in this particular area. By changing their food requirements, all the bats could live together without competing for the same food source.)* Reinforce the notion that speciation does not just occur in the country of Panama but in many remote regions where animals are land-locked and cannot effectively migrate to new locations.

Step 7
Ask the students what features the Darwin moth (which lives in Madagascar) and the bats of Panama have in common even though they do not share the same niche. *(The bats and the moth both fly.)* Explain to the students that even though two unrelated structures in unrelated organisms exist, they may evolve in a way to perform similar functions. For example, the wings of bats, birds, and insects evolved separately from each other but all are used to perform the function of flying. Likewise the complex eyes of vertebrates, squids and octopi, jellyfish, and insects evolved separately, but all provide vision. These are called analogous structures (*wings and eyes*) and have developed through a process called convergent evolution. Allow students to write down the two examples of analogous structures next to the definition of convergent evolution (already printed) on the handout.

Step 8
Summary of the terms and concepts learned thus far: evolution, natural selection, adaptation, convergent evolution, analogous structures, and camouflage. Explain to the students that we will continue our investigation of evolution by examining other forms of natural selection, sexual selection, mimicry and camouflage using the computer. Ask the students to log on to the first web site, http://www.pbs.org/wgbh/evolution/library/01/4/image_pop/l_014_01.html. Provide the students with a **FOCUS FOR MEDIA INTERACTION,** asking the student to complete the questions on the handout relating to each of the following Web sites. Explain to the students that some of the web sites require completion of the simulation in order to answer

the questions. *(Note to teachers: Some of the Web sites will require more time than others. You may opt to limit how much time students spend on each web site then review answers to the questions before allowing them to proceed to the next Web site. This will ensure the class is proceeding through each web site at the same rate. It also allows the teacher to assist students with the comprehension of the concept before moving on the next set of questions.)*

Web Activities
1. Convergent Evolution -
http://www.pbs.org/wgbh/evolution/library/01/4/image_pop/l_014_01.html
Question- Name four animals which represent convergent evolution. Click on the image to make it larger.
(*Spiny Anteater, Giant Anteater, Giant Pangolin, and Giant Armadillo)*
Question- How are these four animals similar even though they reside in different locations in the world?
(Each uses their unusually long sticky tongue, few teeth, rugged stomach and large salivary glands.)

2. Camouflage- http://school.discovery.com/schooladventures/planetocean/seame.html
Question- What special features camouflage each of these fishes?
(The butterfly fish appears to have two eyes thus distracting predators allowing them to escape. The trumpet fish resembles kelp, a type of sea grass. The Leafy Sea dragon has the appearance of basket coral thus blending with this environment quite well.

3. Camouflage- http://www.pbs.org/wgbh/nova/leopards/seeinggame.html
Complete the simulation and then answer the questions based on your understanding of the concepts.
Question- How is camouflage different from mimicry?
(Camouflage is a method an organism uses to blend in with its environment. Mimicry occurs when one species looks more or less similar to another species.)

Question- What mistakes did you makes in categorizing the organisms? Why?
(Students answers will vary.)

4. Sexual Selection- www.pbs.org/wgbh/evolution/sex/mating
Complete two rounds of the "Mating Game" simulation then answer the questions. If time permits, you may continue with other rounds.
Question- What clues did you use to find the correct mate?
(*Answers depend on which round the students choose. In any case, one had to have common knowledge of the animal or organism presented to eliminate which of the possible dates would not be compatible with them.)*

5. Defense Mechanisms-
http://school.discovery.com/schooladventures/planetocean/defense.html
Question- What makes each fish's defense mechanism unique?
(*The porcupine fish puffs up extending sharp spines. Predators choosing to swallow this ball of needles meet grave consequences. The stonefish may not appear deadly yet it is the most poisonous fish in the world! The stonefish's blobby shape and subtle colors help it blend in with the ocean floor. Fish or humans coming in contact with it will receive*

many deadly spines in their flesh. The clownfish is a slow swimmer. By living among the poisonous tentacles of stinging anemones, it is protected. Clownfish aren't born immune to the anemones' stings, but they quickly build up a film of mucous that protects them.)

To summarize, evolution is the process of changing the existing species into new species better equipped to survive the challenges of their environment. Change could result in camouflage coloration, unique defense mechanisms, an increase in the number of species to prevent extinction, mimicry of other more dangerous animals, and/or selective mating to ensure hardy and healthy offspring.

Culminating Activity

Using digital video, students will demonstrate their understanding of the nature of evolution and the many ways it is evident today. They may incorporate clay animation, models, simulated interviews, selected video clips and other copyright-friendly resources. Be sure to encourage students to obtain permission to use Internet resources and provide proper citations.

The culminating activity may take other forms. This lesson offers the opportunity for differentiated instruction, enabling students with varied levels of understanding to enhance their learning through alternative activities. They may stage a debate about the existence of evolution and its relationship to the concept of creationism. They may also make a video of organisms demonstrating some form of adaptation, mimicry, diversity of species or convergent evolution. By providing other differentiated options you can engage students in the learning process with activities that both motivate and challenge students to remain on task.

The following steps provide a framework for a digital video project.

Step 1:
Identify students who will be creating a video project and organize them into production teams (4-5 students or less). Provide them with specific guidelines and handouts (see resources above in the "Student Materials" section that will help them plan their production. The guidelines should include the purpose of the video (to inform others about how evolution has altered our environment), and a suggested length (may range from 60-90 seconds up to a few minutes depending on the time available to develop the project). Students should be encouraged to be clear and concise and tell their story in a short amount of time.

Step 2:
Working as a team, students will develop a storyboard for their video. Storyboards help organize projects, identify the shots or frames that will be recorded and the information needed to support them. Students should not use the equipment until the storyboards are complete and approved. This will keep their project focused.

Step 3:
Assign roles for each team member. These roles may include: Producer: plan each shot and determine any "remote" locations. Director: supervise the recording sessions, set up the shots, and cue the actors. Videographer: use the camera with skill and knowledge of what makes a good shot. Narrator: narrate the video by providing background comments

to explain scenes. Set designer: design the set or, alternatively, clay animation scenes.

All team members will assist in locating print and Web resources to support the content of their video, as well as assist in building props or finding appropriate scenery.

Step 4:
Teach students how to use the digital camera. Although some students may be familiar with digital video equipment, show them the basics of the equipment they will be using. This could include starting and pausing, recording, focusing, zooming, panning, taking still clips. The advantage of digital editing software is that longer clips are better than shorter ones. Keep it simple. Have students film planned scenes.

Step 5:
Edit video clips using video editing software (iMovie for Mac or MovieWorks for PC). Students will edit the video to include titles, credits, still shots, transitions, and additional audio as needed. Remember to observe copyright restrictions, obtaining permissions for using Internet images, sound clips from CDs (should be limited to 30 seconds) and other proprietary material. Although educational fair use generally permits use in student projects, some permissions may still be required. Make this an authentic activity by providing real life guidelines for video production.

Step 6:
After students complete their video, allow the students an opportunity for them to share their work with others. They can use their video to discuss their learning and to educate their peers.

Cross Curricular Extensions

Technology/Art
Have students design their version of a newly developed species from an existing animal. What would it look like? What name would you give the new species? A scale drawing or model could be created.

Language Arts
Students can read one of the books listed below relating to evolution or Charles Darwin. The follow-up activity could be the students write a short story of an adventure with Charles Darwin on the high seas discovering new lands brimming with exotic organisms.

Futuyma, Douglas J. (1997). *Evolutionary Biology*. Sunderland, Mass.: Sinauer Associates.
Ridley, Mark. (2003). *Evolution*. Boston: Blackwell Scientific.
Hartl, Daniel L. & Andrew G. Clark. (1997). *Principles of Population Genetics*. Sunderland, Mass.: Sinauer Associates.
Crow, James F. & Motoo Kimura. (1970). *Introduction to Population Genetics Theory*. Edina, Minn.: Burgess Publishing Company.
Graur, Dan & Wen-Hsiung Li. (2000). *Fundamentals of Molecular Evolution*. Sunderland, Mass.: Sinauer Associates.
Lewontin, Richard C. (1974). *The Genetic Basis of Evolutionary Change*. New York: Columbia Univ. Press.
Gillespie, John H. (1997). *The Causes of Molecular Evolution*. New York: Oxford Univ. Press.

Golding, Brian, ed. (1994). *Non-Neutral Evolution*. Boston: Chapman and Hall.
Kimura, Motoo. (1983). *The Neutral Theory of Molecular Evolution*. Cambridge, U.K.: Cambridge Univ. Press.
Endler, John A. (1986). *Natural Selection in the Wild*. Princeton, N.J.: Princeton Univ. Press.
Eldredge, Niles. (1989). *Macroevolutionary Dynamics*. New York: McGraw-Hill.
Cowen, Richard. (2004). *History of Life*. Boston: Blackwell Scientific.
Dawkins, Richard. (1987). *The Blind Watchmaker*. New York: W.W. Norton.
Kitcher, Philip. (1982). *Abusing Science*. Cambridge, Mass.: MIT Press.
Wilson, Edward O. (1992). *The Diversity of Life*. Cambridge, Mass.: Harvard Belknap.
Darwin, Charles. (1859). *On the Origin of Species*.
Darwin, Charles. (1871). *The Descent of Man*.
Haldane, J.B.S. (1932). *The Causes of Evolution*. Princeton, N.J.: Princeton Univ. Press (reprinted 1990).
Simpson, George G. (1944). *Tempo and Mode in Evolution*. New York: Columbia Univ. Press.
Mayr, Ernst E. (1982). *The Growth of Biological Thought*. Cambridge, Mass: Harvard Belknap.
Provine, William B. (2001). *The Origins of Theoretical Population Genetics*. Chicago: Univ. of Chicago Press.

Community Connections

- Have a local paleontologist or anthropaleontologist visit the school and discuss some recent finds in various locations in the world.
- Visit the Museum of Natural History for a chronicled account of various artifacts which could explain possible evolutionary change.

Evolution Video

Name _____

Goal: To make a video representing some aspect of evolution.

Requirements of Project:

1. No more than 1-2 minutes in length.
2. Can use human actors, clay animations or cartoon characters.
3. Must be completed by the date _____.

Must fit the rubric as presented below.

Rubric of Video Project

Subject Matter – 50%
Did the project accurately present some aspect of evolution?
Was there more than one concept used in the video?
Did the storyboard make sense to the viewer?

Creativity- 35%
Did the team present the concept in a creative yet tasteful manner?
Was there a variety of cinematography used in making the video?
Did the video utilize proper lighting?
Were there smooth transitions between scenes?

Technical – 15%
Was the project completed on time?
Did all members contribute to the making of the video?
Were the scenes appropriate for the subject matter of the video?
Were any copyrights infringed upon (i.e. use material or music that was not approved)