

SKILLS

Observing, comparing, contrasting, evaluating, sorting, discussing, artistic representation, writing, and drawing

NATIONAL SCIENCE STANDARD

Science as Inquiry

Content Standard A

Students should develop:

- Abilities necessary to do scientific inquiry
- Understanding about scientific inquiry

Life Science

Content Standard C

Students should develop understanding of:

- The characteristics of organisms

OBJECTIVES

Students will look critically at digital photographs, line drawings, and cartoon images in order to understand the differences between exact and exaggerated representation. They will create their own drawings and cartoons based on their observations of a digital photograph. They will compare, contrast, and sort a collection of photographs, drawings, and cartoons.

ASSESSMENT

Evaluate student line drawings and cartoons as students are creating them. Determine whether or not the student is able to incorporate the information presented in the lesson by creating drawings using two styles. Assess each student's ability to differentiate and sort photographs, drawings, and cartoons so that they understand the differences between real and artistic forms of representation.

MATERIALS

- "Take Another Look" activity sheet for each student
- "Take Another Look" activity sheet copied onto transparency film
- overhead projector
- chalkboard or chart paper
- pencils
- scissors
- paper
- glue sticks or glue



SUBJECTS
SCIENCE
LANGUAGE ARTS



TIME
Preparation
15 minutes
Teaching
30 minutes
Evaluation
10 minutes



VOCABULARY
cartoon
drawing
photograph
simplify
characteristics
exaggeration



MORE IDEAS & TECHNOLOGY CONNECTION
Located at the end of each lesson.

BACKGROUND

Some of the insects and arachnids pictured in the Smithsonian O. Orkin Insect Safari truck are cartoons. They are stylized illustrations that show a number of characteristics of a particular insect, yet have an appealing sense of whimsy and humor. Young students need the opportunity to look critically at actual photographs of insects and compare them with drawings and cartoons in order to develop their skills of observation and analysis, as well as to learn to recognize the differences between scientific fact and artistic license.

LESSON**Looking at a Human**

Put the “Take Another Look” overhead transparency on the overhead projector or distribute copies of the “Take Another Look” activity sheet for students to examine. Cover up all the images except the digital photograph of a person in the top left corner. Inform students that this is a photograph of a real person named Doug. Ask students to look closely at the photograph and make some observations about the features of Doug’s face.

Now uncover the line drawing of Doug, to the immediate right of the photograph. Ask students to compare the two. How many things can they observe that are the same? Now ask students to contrast them. How are the two images different? Inform students that this second image is a drawing. The drawing is meant to look a lot like the actual thing looks, but because it is drawn on paper, it looks different. Many times drawings have lots of detail.

Reveal the third image in the top row, the cartoon image. Tell students that this is a special kind of drawing called a cartoon. Compare and contrast the cartoon with the other images. Point out that while a cartoon should be recognizable, many characteristics (specific things) look different than an actual photograph. Cartoonists don’t need to add lots of detail; they often make the image look simpler. Cartoonists may exaggerate a specific body part by drawing it bigger or smaller than it really is. They might add something funny, like a hat or glasses. Does Doug actually have antennae? Not likely! That is why it looks so funny in the cartoon. Discuss which things in the cartoon look like the actual person and which things do not.

Looking at an Insect

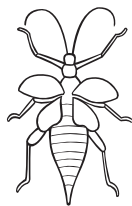
Now uncover the boxes in the second row that show the adult female New Guinea stick insect (*Heteropteryx dilatata*). It is actually 9 inches long and 5 inches wide including leg span! They live in Southeast Asia and are active at night and live in trees and shrubs. They like to eat leaves from plants such as the guava, rose, and blackberry. The females are green. The males can fly but the females cannot. Compare the photograph of the insect to the drawing and the cartoon. Make a three-column chart on the chalkboard or chart paper similar to the one below. Fill it in with specific similarities and differences the students identify among the three images.

Female New Guinea Stick Insect

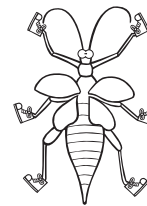
Digital photograph



Line Drawing



Cartoon



Ask students to think about some other creative ways a cartoonist might draw the stick insect. Try to incorporate bits of information from the insect's habitat, diet, etc. Encourage students to use their imaginations to come up with things that are not realistic, but are still partially based in reality. For example, if it rains a lot in the walking insect's habitat, suggest drawing it holding an umbrella. Tell students that they are now going to have a chance to try out their creative ideas.

Students Draw and Cartoon

Distribute the "Take Another Look" activity sheets. Direct students to look at the bottom row. Using the digital photograph of the beetle as a reference, challenge students to create a drawing in the second box, making it as realistic as they can. In the third box, they are to make a cartoon of the beetle, changing a body part or giving it something funny to hold. This may be as simple as giving the beetle big eyes, or a goofy smile.

As students are working, walk around the room and evaluate their work.

Sorting Practice

Pass out scissors to the students. Ask students to cut along the dotted lines on their activity sheets. Have them turn all nine squares face down and mix them up. Next, have them turn them over and sort the images into three piles: photographs, drawings, and cartoons. Evaluate students' abilities to meet the objective by walking around the room and observing their work.

Closing Discussion

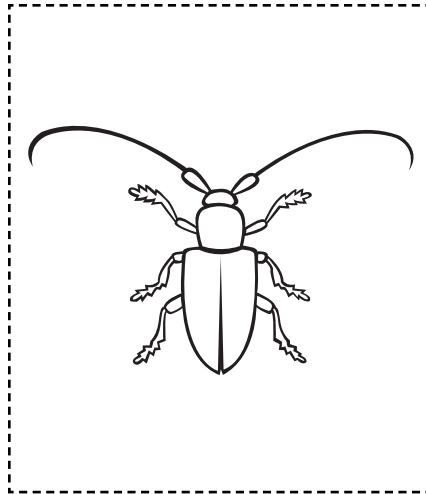
Summarize the information presented in the lesson by initiating a class discussion. Point out to the students that each of the three kinds of images used in this lesson has specific advantages and may be used for different purposes. Invite them to think about situations where one type of image may be the best choice. Which image would be helpful if you wanted to label specific major body parts? (line drawing). Which image would you want to see if you were studying how the insect actually blends in with its surroundings or how it looks in its natural environment? (a color photograph). What if your goal was to write a creative story about a walking stick that dreamed of being a cowboy? (cartoon).

Creating a Class Book

Ask students to take out their line drawings and cartoons of the beetle. Provide each student with a sheet of plain paper and a glue stick or glue. Have students glue their line drawing and cartoon onto the piece of paper. Under the two pictures, have them write a short sentence or two explaining something they learned about drawings and cartoons. Collect all the illustrations and staple them together behind a copy of the digital photograph of the beetle, and bind all pages together as a class book.

MODIFICATIONS*Beginning:*

Tape the simple drawings of the beetle below in the two empty boxes on the activity sheet before copying. Direct students to look closely at the photograph on the activity sheet and then add one or two details to the line drawing to make it look more like the photograph. Have them add some kind of tool or piece of clothing to the drawing to make it funny and unrealistic, more like a cartoon.

*Advanced:*

Challenge students to find a photograph of an insect on their own. Have them create their own line drawings and cartoons. Ask them to find out the actual name of the insect and a few facts about it. Ask them to imagine some funny things to share about their cartoon insect. Have students present their images and information to the class.

MORE IDEAS

Have students write a creative story about a cartoon insect of their choice. Encourage them to use their imaginations and give the insect character they create unusual qualities that an actual insect would not have.

Have students prepare a short research report about either the New Guinea stick insect, the beetle from the lesson, or an insect of their choice. Include basic information such as where they live, what they eat, what they do to survive, etc.

Challenge them to include a detailed line drawing of their insect, with major body parts clearly labeled.

TECHNOLOGY CONNECTION

Have students use a drawing program to illustrate their insects, either as a realistic drawing or a cartoon image. Print them out and display them in the classroom.

ACTIVITY SHEET
TAKE ANOTHER LOOK

NAME _____

DIGITAL PHOTOGRAPH

LINE DRAWING

CARTOON

