Lesson Title: Coin Observations

Grade & Subject: 4th-7th grades, science (integrates language arts and math (money))

Date & Time: August 25-27, 2004. 50 minutes per class period for 3 days

Objective: Students will observe, make hypotheses, compare, and contrast coins, and draw conclusions while creating an AppleWorks slideshow.

Indiana State Standards:
4.1.1 Observe and describe that scientific investigations generally work the same way.
5.2.4 Record observations and distinguish inferences from actual observations.
6.1.3 Recognize and explain that hypotheses are valuable….
7.1.2 Explain that what people expect to observe often affects what they actually observe.

Activities:
Day 1

1. Introduce the activity. Ask students to draw the heads side of a penny without looking at a penny. After a minute or so, show students a real penny and talk about what it looks like versus what students drew. (Differences are not necessarily bad; for instance, a student might have drawn an enlarged version of a penny.)
2. Talk about observations. Explain that students who had observed pennies closely probably had more accurate drawings. Discuss the ways people can observe (look, touch, taste, smell, hear – also measure). Mention that we have to observe in ways that are safe.
3. Review how to use the computers. Have students remind one another about proper computer usage, and bring up any points they have missed.
4. Give a brief overview of the project. Tell students they will be using the presentation (slide show) part of AppleWorks. They will work in groups to make slide shows about two coins – one from the U.S. and one from Canada. They will have to use teamwork and observation skills to complete the project.
5. Assign students to groups of approximately three people and have them get their computers.
6. Walk students through precisely what they need to do on the computers. Have them open up the template and walk them through how to navigate the program. Instruct them to fill in their names on the first slide, skip the second slide for now (scan coins tomorrow), and make a prediction for the third slide (complete sentences with a hypothesis beyond "They will be different", please). For Slide 4, review what a circumference is and how to measure it. Then have groups come up with and type in four other aspects of the coins they would like to observe. Briefly explain what to do with the final slides. (Change the word circumference on Slides 6-9 to match their choices from Slide 4. Then observe the coins and type in brief observations for both coins.) Have students save their presentations before you end the how-to part of the lesson.

7. Have students work on the slide shows in their groups. Walk around to assist them. They should try to finish through the fourth slide, deciding what about the coins they want to observe. If students set up their slide shows (have completed through Slide 9, changing "Circumference" to match their choices on Slide 4, give them two coins (of the same denomination) so they can start observing.

Day 2

1. Review what students are supposed to be doing (making the slide show, observing the two coins, scanning today).
2. Teach students to use the scanners. Guide them through a practice scan with an object like a pencil. Use the "How to Use the Scanner" handout for a guide, if you are using PhotoStudio in OS X. (Other operating systems, scanner programs, and scanners may work differently.)
3. Have students scan their coins once they successfully scan and save the practice object. Make sure they save the scanned pictures as jpeg to the desktop.
4. If time remains, show students how to place the coins in their slide shows. (Drag the picture from the desktop to Slide 2. Then resize the picture.) Have students work on the other parts of their slide shows after they do this.

Day 3

1. Review the assignment, noting that students should be finished by the end of the day, Remind students of how the presentation will be graded. (See the rubric.)
2. Talk about the last slide in greater detail. Review what it means to draw conclusions, and talk about what conclusions students might have drawn from the activity. Instruct students to write their own conclusion sentences. (Fourth graders had to write one sentence, fifth graders had to write two sentences, and sixth and seventh graders wrote a conclusion paragraph.)
3. Have students finish their slide shows. Some students may need to use the scanners to finish scanning coins.
4. Students who finish can change the colors and fonts. They can also design their own money on a sheet of paper or make their own slide show about money.

Assessment: Students were assessed on their behaviors as they worked in their groups. (See the attached checklist.) Their presentations were also assessed using the attached rubric.

Resources/Materials: Coin slideshow template, rubric, how to use the scanner guide, science behavior checklist, variety of coins from the U.S. and Canada, computers (1 for every 3 students), scanners, projector, tape measurers

Reflection: It would be nice to be able to have students show their presentations. We ran out of available time with the computers and projector. The younger students needed much more step-by-step guidance as they worked on the project, while the sixth and seventh graders could have almost done the activities before they were fully explained. Some students chose to observe things that were basically the same thing (such as size and circumference) or things that were too broad (such as appearance) and left them with hardly anything else to observe. Younger students needed more help with teamwork,

such as who got to use the computer when. Teachers may want to set a time limit for each person and have students switch places when their time is up.

Science Activity Behavior Checklist - 5th grade

Activity: **Date:**

Students	Listens to others	Does group job	Shares ideas or questions	Supports ideas with clear reasoning	Follows Directions

Key to effort/meeting objective					
0 = No effort	1 = minimal	2 = some	3 = okay	4 = good	5 = excellent

Coin Comparisons
Slide Show Project Rubric

1. Were the coins scanned and place correctly in the slide show?

YES (3 pts) NO (0 pts)

2. Was there a hypothesis and was it stated in a complete sentence?

YES (4 pts) NO (0 pts)

3. How many observable physical characteristics did the group include?

FIVE (5 pts) FOUR (4 pts) THREE (3 pts) TWO (2 pts) ONE (1 pt)

4. Were the observations written in clear, complete sentences?

ALL (10 pts) MOST (7 pts) SOME (4 pts) ATTEMPTED (2 pts) NONE (0 pts)

5. Did the group make observations about the coin?

ALL (10 pts) MOST (7 pts) SOME (4 pts) ATTEMPTED (2 pts) NONE (0 pts)

6. Did the group write a conclusion that stated the results of their experiment and used their research to support their result statement?

YES (6 pts) SOME (3 pts) NO (0 pts)

7. Was the conclusion a paragraph with correct grammar?

YES (6 pts) SOME (3 pts) NO (0 pts)

8. Was the slideshow neatly done (same font, same font sizes, etc.)?

YES (6 pts) SOME (3 pts) NO (0 pts)