

The Brain & Skull: “*Animal Skulls*”

GOAL

The goal of this lesson is to make the students aware of the relationship between the skull and the brain, and to begin thinking about how humans are both alike and different from other mammals. By making observations and measurements, students see tangible evidence of these similarities and differences. By the end of the lesson, students should be aware that the human brain is a different size and shape than other animal brains.



Set-up:

- 6 mammal skulls and/or skull models (human, baboon, wolf, deer, small dog, sheep)
- Sturdy numbered boxes for each skull
- Observation worksheet for each student
- List of possible identities (some of which are false)
- Rulers with both inches and metric equivalents



PROCEDURE

Engage (5 minutes)

- Six different types of mammal skulls are displayed at the front of the classroom. The six used in this lesson are human, baboon, wolf, sheep, deer, and small dog.
- Ask the students:
 - What are these objects?
 - What are they made of?
 - Why do skulls need to be so hard?
 - Why is protecting the brain important?

Explore (5 minutes)

- The students will be divided into six groups of four or five.
- Each group will receive rulers with both standard and metric units.
- Discuss how measurements help us compare different things
- Stress the importance of group work, and the need for each student to



PROCEDURE

make a positive contribution to the group's findings.

Explain (15 minutes)

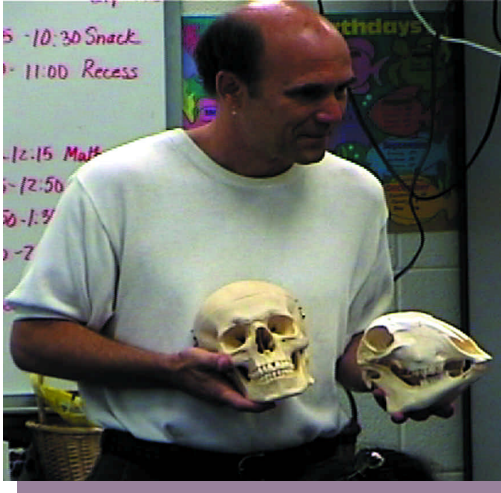
- Explain that when scientists examine an object, they make observations and measurements. .
- Ask students the following:
 - How long are the skulls?
 - How wide?
 - What did the animals eat?
 - Are the teeth pointed or flat?
 - Where would the eyes be, and how big would they be?
 - Where would the brain be in each skull?
 - Would all the brains be the same size?
 - Does brain size affect what the animal can and cannot do?
- Discuss how all the observations can help form a description of each animal.

Expand (30 minutes)

- Give each student a work sheet with numbered areas for observations and measurements of each skull.
- Make sure that the students understand that the numbers on the skull boxes stand for the spaces on the worksheet they are to fill in. Findings for skull #1 go in the spaces marked 'skull #1'; information about skull #2 goes in the spaces marked 'skull #2', and so on. Point out the numbers on the boxes.
- Each group gets to examine a skull for five minutes, then rotate the skulls in a pre-determined direction.

Evaluate (10 minutes)

- After the students have examined all six skulls and completed their worksheets, hold up skull #1 and rotate through the groups until each has guessed the animal's identity. Continue until all the skulls are correctly identified.
- Give an evaluation form to each group containing the following checklist: 1-everyone did something to help, 2- we did the best we could, 3- we worked well together, 4- we respected each other. Add up the checked items to get the group score. The highest score possible is a 4. At the bottom is a space to write what the group feels they need to work on.
- Collect the worksheets and group evaluations for assessment.



- **Key Cognitive Skills:**
Observing, Comparing, Describing, Measuring, Collecting and Recording Data, Comparing and Contrasting, Drawing Conclusions
- **Vocabulary Terms:**
Skull
Brain
Observation
Measurement
- **Specific Outcomes:**
 - Students will make observations and measurements of 6 mammal skulls.
 - Students will use the data they collect to match the skulls with the appropriate animal.
 - Students will evaluate their own group performance.

PROJECT 2061 BENCHMARKS FOR SCIENTIFIC LITERACY

1B Scientific Inquiry:

Scientific investigations may take many different forms, including what things are like.....

1C The Scientific Enterprise:

In doing science, it is often helpful to work with a team and to share findings with others. All team members should reach their own individual conclusions, however, about what the findings mean.

Clear communication is an essential part of doing science....

3A Technology and Science:

Measuring instruments can be used to gather accurate information for making scientific comparisons of objects....

5A Diversity of Life:

A great variety of kinds of living things can be sorted into groups in many ways using various features to decide which things belong in which group.

6D Learning:

Learning means using what one already knows to make sense out of new experiences or information, not just storing the new information in one's head.

My Name _____

Group number _____

Today we are going to look at six different kinds of **skulls**. A **skull** is made of bone, and protects the **brain**. What is a **brain**? Is the brain an important part of an animals' body? Of yours?

Each animal has a different shaped skull. What other differences can you see? Scientists use tools to **measure** things, finding out how long or thick something is. Use the measuring tools to **measure** different parts of the skulls. **After you have observed and measured**, we will use your observations to guess what kind of animal each skull is.

Animal #1 observations and measurements: _____

Animal #2 observations and measurements: _____

Animal #3 observations and measurements: _____

Animal #4 observations and measurements: _____

Animal #5 observations and measurements: _____

_____.

Animal #6 observations and measurements: _____

_____.

Okay, you have observed and measured each of the skulls. Now, **name that skull!** Here is a list of some possible answers. Be careful, some of these are not the right answers! **Human, bear, wolf, horse, baboon, sheep, elephant, small dog, dolphin, moose, pig, cat, velociraptor, deer**

Animal #1 is a _____.

Animal #2 is a _____.

Animal #3 is a _____.

Animal #4 is a _____.

Animal #5 is a _____.

Animal #6 is a _____.

