

Exploration Frame

What is an Exploration Frame and why is it important?

An Exploration Frame is a graphic aid that can help students learn scientific information and understand the inquiry process used in science experiments. The visual aid helps students make predictions or hypotheses, collect data, and interpret the data to arrive at a conclusion.

How can I use an Exploration Frame with my students?

Help students enter information on the frame before, during, and after the experiment. First, ask students what question is to be answered through the experiment. Have them write the question on the frame. Then have students predict what the results of the experiment might be based on their knowledge of the topic and write the prediction on the frame.

Have students follow the directions to perform the experiment, recording the data on the frame. Help students interpret the results of the experiment by completing the About, Point, and Why sections of the frame. Show them how they can derive the About from the Exploration Question and the Point from the data collected. The Why is the conclusion they draw to explain the About Point.

Students should check whether the Prediction/Hypothesis was confirmed and record any questions they may have.

Following is an example of an Exploration Frame for an experiment to determine the effects of blubber on retaining heat.

Materials:

- thermos of hot water
- 1 plastic cup
- 2 thermometers
- 2 plastic cups (blubber cup) joined with electrical tape and lard spread between them before taping (serves the same function as blubber)
- 1 pan of ice water (acts like Arctic cold)

Method

- Fill the blubber cup and the regular cup with hot water.
- Put a thermometer in each cup.
- Record the starting temperature for each cup of hot water.
- Immerse both cups of hot water (blubber cup and regular cup) in the pan of ice water.
- Record the temperature of each cup every 30 seconds for two minutes.
- Compare the temperatures of the water in the regular cup and the blubber cup.

Exploration Question: How does blubber help polar bears survive?	Prediction/Hypothesis: Blubber warms the polar bears.
Data Collection	Interpretation
Starting Temperatures of Hot Water: Regular cup: 118° F Blubber cup: 118° F Cold Water Temperatures: Regular cup: 114° F (30 sec.) 110° F (1 min.) 106° F (1-1/2 min.) 100° F (2 min.) Blubber cup: 118° F (30 sec.) 117° F (1 min.) 116° F (1-1/2 min.) 116° F (2 min.)	About: Blubber Point: It maintains temperature longer than no blubber. Why (conclusion)? Blubber serves as an insulator from the cold and maintains body heat.
Prediction/Hypothesis Confirmed? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Blubber keeps polar bears warm.	New Question(s): Does fat protect all animals this way?

Name: _____ Date: _____

Exploration Frame

Exploration Question:	Prediction/Hypothesis:
Data Collection:	Interpretation:
	About: Point: Why (Conclusion)?
Prediction/Hypothesis Confirmed?	New Question(s):
<input type="checkbox"/> Yes <input type="checkbox"/> No	