

Name _____ Date _____

Cold-Water Adaptation

Procedure

1. Work with a partner. Wear disposable gloves. Have your partner hold open a plastic bag and use a spoon to half-fill it with solid vegetable shortening. **Safety:** Do not eat the shortening.
2. **Experiment** Place one gloved hand in the bag with the shortening. Have your partner press on the outside of the bag until the shortening covers the glove. Place your other gloved hand in an empty plastic bag. Have your partner use masking tape to seal both bags around your wrists.
3. **Predict** Record how long you think you will be able to hold each hand in cold water before feeling the cold.

4. **Measure** Place both covered hands in a tub of cold water. Keep the tops of the bags above the water level. Remove each hand from the water when it feels cold. Have your partner time and record how long you kept each hand in the water.

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Conclusion

1. **Analyze Data** Which hand did you remove from the water first? Compare your results with your prediction.

2. **Infer** Shortening is a kind of fat. How might a layer of fat help an ocean animal survive in cold water?

Experiment

Guided Inquiry

Choose another material to cover your gloved hand. Repeat the experiment with the new material.

Hypothesize about whether or not this material would keep an animal warm in cold water.
