

## Details



**Completion Time:** More than a week

**Permission:** Download and Share

# Shrunken Spotted Seal Measurement Fun

## Overview

Students will use "Susea" the seal—a seal toy that grows in water—to discover the scientific process. This lesson was created by Maggie Prevenas who took part in seal research during the Bering Ecosystem Study on the USCGC USCGC *Healy* in the Bering Sea.

## Objectives

Students interact as a scientist, with a seal that grows in water to practice basic measuring and scientific inquiry skills, while learning valuable lessons about the importance of studying wildlife.

## Lesson Preparation

Tell students the story of Susea the seal (below), or create your own seal story!

*A short while ago in the Bering Sea, Mrs. Prevenas went on a scientific expedition to help learn more about global climate change. While she was there, she did research with PHOCIDS, also known as earless seals. Earless seals DO have an ear, but they don't have an EXTERNAL ear you can see. She saw spotted, ribbon, bearded, and ringed seals. She even seal baby sat one spotted seal whose mumma was being tagged for research. She enjoyed it very much. She played all sorts of fun educational games with the babies.*

*News of her skill of seal sitting got out to all the mumma spotted seals in the Bering Sea. Soon she was in great demand getting calls from the ice to come on down and seal sit the little ones*

## Materials

- "Growing Seal" toy from discount store
- Water vessels of varying sizes from small to large bucket, bowl, or aquarium
- Water
- Seal inquiry Guide Worksheet
- Seal Inquiry Rubric
- Susea the seal contest Worksheet



*while the mummies got tagged, or were out galumping for food. One day, she sadly witnessed a polar bear catching a mummy seal and taking it back to the polar bear den. Nature can be tough. Twin baby seals had lost their mummy!*

*Mrs. Prevenas had a great idea. She would shrink the baby seals to a very small size and bring them back with her to Hawaii. Then when she got back to her island, she would expand them back to regular size and find a nice Hawaiian Monk Seal family that would adopt them. They could live out the rest of their lives in the warm clear blue waters of Hawaii.*

*The scientists agreed to help. They created a special machine that would dehydrate the seals so that they could be easily packed or mailed. Mrs. Prevenas put the twin seals through the machine and packed them into her gear bag. She left for the gentle warm waters of Hawaii with the babies safe in her pack.*

*But ouwe! Nature strikes again. In the second part of the scientific mission that occurred in May and early June, scientists witnessed another polar bear attack. Another mummy spotted seal had become polar bear food! Now another baby seal was a sad lonely orphan. They remembered what Mrs. Prevenas had done to the twin seals! Quick as the flash of polar bear claws, they dehydrated the baby spotted seal and placed it safe in the cargo hold of the ship. It was forgotten for two months!*

*When the ship got back to Seattle and was unpacked, the seal scientists found the dehydrated seal at the bottom of the box. What to do? Why send it to Mrs. Prevenas who would rehydrate it, find a lonely Hawaiian Monk Seal mummy, and give the baby spotted seal a new home.*

*Can you help her out by rehydrating the baby spotted seal? She needs to know how much it is going to weigh and how long it will get in 15 days, after the process is over.*

### **Procedure**

Submerge the shrunken seal toy in water where everyone in the class can watch the changes that take place in the seal daily. Be prepared to transfer the seal to new containers as it grows.

Over 3-4 week period, periodically measure and weigh the seal. Revisit the "Shrunken Seal Inquiry" worksheet to reevaluate student hypothesis, experiment, and conclusions. Use the "Susea the Seal Contest" worksheet to make predictions about the seal's growth.

### **Extension**

Visit Ms. Prevenas' journal from the "Bering Ecosystem Study." Read about the seal research that was conducted in the Bering Sea. Have a discussion about the challenges and benefits



of doing research in the Bering Sea.

**Resources**

n/a

**Assessment**

Evaluation rubric included with this lesson.

**Credits**

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**National Science Education Standards (NSES):**

**Content Standards, Grades 5-8**

Content Standard A: Science As Inquiry

- a. Abilities necessary to do scientific inquiry

Content Standard C: Life Science

- d. Populations and ecosystems

Content Standard F: Science In Personal and Social Perspectives

- b. Populations, resources, and environments

**Other Standards:**

N/A

Names: \_\_\_\_\_

\_\_\_\_\_

## Shrunken Seal Inquiry

Question	Hypothesis If.....then.....because.	Proposed experiment (use back of guide)
Data	Discuss Data/Graph Do you have evidence your hypothesis was supported?	Conclusion How was your hypothesis supported by experiment?

DV= Dependent Variable (what are you measuring)

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IV= Independent Variable \_\_\_\_\_

# Susea the Seal Contest

Name \_\_\_\_\_ Date \_\_\_\_\_

Today Susea is \_\_\_\_\_ centimeters in length.

She weighs \_\_\_\_\_ grams.

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**How fast will Susea grow?** How long will she be and how much will she weigh?

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In one week on Wed. Aug 15, 2007, my guess is:

Length \_\_\_\_\_ cm      Weight \_\_\_\_\_ grams

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In two weeks on Wed. Aug 22, 2007, my guess is:

Length \_\_\_\_\_ cm      Weight \_\_\_\_\_ grams

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In two weeks, which twin be longer or weigh more, Sami or Susea (Suzi)?

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In two weeks, which twin be longer or weigh more, Sami or Susea (Suzi)?

Names: \_\_\_\_\_

## Seal Inquiry Rubric

<p>Question- What could change the rate that your shrunken seal</p>	<p>Hypothesis</p> <p>Hypothesis is written as: If...then...because statement 1-missing, 2-not yet, 3- approaching, 4-meets (yes)</p>	<p>Proposed experiment (use back of guide)</p> <p>Experiment is clearly written and drawn so that other teams could do the experiment exactly as you have done. 1-missing, 2-not yet, 3- approaching, 4-meets (yes)</p>
<p>Data</p> <p>Data or evidence represented in a table or graph 1-missing, 2-not yet, 3- approaching, 4-meets (yes)</p>	<p>Discuss Data/Graph Do you have evidence your hypothesis was supported?</p> <p>Data or evidence shows or doesn't show your hypothesis is supported 1-missing, 2-not yet, 3- approaching, 4-meets (yes)</p>	<p>Conclusion How was your hypothesis supported by experiment?</p> <p>Conclusion CLEARLY says WHY your hypothesis was supported or not AND next steps for inquiry. 1-missing, 2-not yet, 3- approaching, 4-meets (yes)</p>



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