



# Butter insulation experiment!



The Grey Seal generally breeds in Irish waters from September to December, and fluffy seal pups are born during the coldest months of the year. The cold, however, is not really a problem for them – why not? Their fluffy coat helps keep the pups warm till they have built up enough fat from the rich milk they suckle on. Their ability to gain fat is remarkable: grey seal pups triple their body mass in only three weeks. All that fat gets stored as blubber under their skin. With this experiment, you will feel for yourself the insulating power of fat!



**Set up time: 5 minutes**

## What do you need?

1. A large container
2. Lots of ice
3. A stopwatch
4. A notebook to record the time
5. Gaffer or parcel tape
6. Fat source (butter, margarine, or lard)
7. Two freezer / self-seal bags
8. Large rubber gloves (optional- for method 2 only)

## What do you do?

*There are two ways of carrying out this experiment. One way is tidier the other one a bit messier, we will give instructions for both and its up to you which one you want to go for!*

### The messy way:

1. First, fill a large container with lots of ice and water
2. Place one hand in the cold water and time how long you can keep it there before the cold becomes unbearable.
3. Make a note of the time you lasted.
4. Now smear your hand with lots of fat and repeat the experiment, timing how long you can keep your fatty hand in the water.



5. Compare the two times.

### The tidy way:

1. Follow steps 1, 2 and 3 in the first method
2. Fill one of the bags or gloves two thirds full of fat
3. Put one of your hands in the other bag or glove then push it into the fat filled bag or glove. Now you have a blubber glove!
4. Roll the ends of the bags or gloves together and seal with tape to stop any fat escaping
5. Put your blubber glove in your freezing cold water and compare times as before

What did you discover on your fat-finding mission?

Here is a fun demonstrational video of the experiment above:

<https://www.youtube.com/watch?v=8I96BZSNNqE>