Energy Flow in Ecosystems Activity Name:\_\_\_\_\_

**Aim**

To infer the loss of energy in the form of heat from the human body

**Hypothesis**

As the movement of my hand \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_the temperature of the water will \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Materials**

* 3 x 250 ml beakers
* Ice
* 3 x Thermometer
* Stopwatch
* Marker pen

**Method**

1. Label your beakers, A, B and C
2. Set up your experiment as shown below. (You may have to add ice to the beakers to get the temperature of the water to approximately 10°C

http://cdn.graphicsfactory.com/clip-art/image_files/tn_image/3/749293-tn_beaker401.gif http://cdn.graphicsfactory.com/clip-art/image_files/tn_image/3/749293-tn_beaker401.gif http://cdn.graphicsfactory.com/clip-art/image_files/tn_image/3/749293-tn_beaker401.gif

200ml of water at approximately 10°C and a thermometer

**C**

**B**

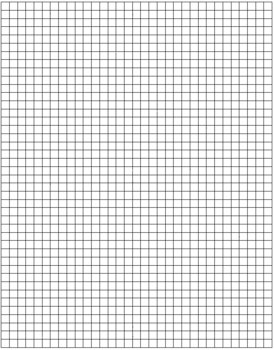
**A**

1. Student A should put one hand into beaker A and the other hand into beaker B. Rapidly wiggle the fingers of the hand in beaker A but keep the hand in Beaker B very still
2. Student B needs to hold the thermometers in beakers A and B and take readings every minute. This studnt also needs to *stir* the water in Beaker B with the thermometer.
3. Student C needs to hold a thermometer in beaker C – this is the control
4. Student D is in charge of the stopwatch and recording the results. Every min for 5 in the temperature needs to be recorded into the table below
5. After the experiment, everyone should copy the results into their own tables and carry out their own data analysis

**Results**

|  |  |  |  |
| --- | --- | --- | --- |
| Time (min) | Temperature in Beaker A (moving hand) °C | Temperature in Beaker B (still hand) °C | Temperature in Beaker C (control) °C |
| 0 |  |  |  |
| 1 |  |  |  |
| 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |
| 5 |  |  |  |

**Line graph of results**



**Conclusion**

What is the purpose of stirring the water in beaker B?

What is the purpose of Beaker C?

In container B you held your hand in the water without moving it.

What happened to the temperature?

Does the data support your prediction?

In container A you exercised your hand.

How did the temperature of the water change?

Does the data support your prediction?