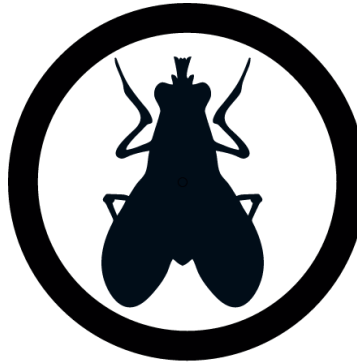


# Project Proposal



DrosobluZ

**Aim :** Our organism of choice is *Drosophila melanogaster*, the typical fly used in laboratories for genetic studies. What interests us however is its ability to do negative geotaxis, meaning that when kept in closed spaces it will cause the fly to move to the top of the container. We also know that temperature affects metabolism to a higher degree on little organisms. And so we plan to study the relationship between media temperature and the negative geotaxis response of our little fruit flies.

**Negative control :**

Don't shake the tube and observe the result ...

**Independent variable :**

Temperature of the tube.

**Dependant variable :**

Speed of the flies or %flies above a mark at the top of the tube ?

**Constant variables :**

- light
- nutriment
- population

**Positive control :**

At room temperature, we give the flies a shake and observe the speed and proportion of flies doing negative geotaxis.

**Hypothesis :**

We expect to see that in colder temperatures, the flies will be slower to respond to the stimulus of shaking due to their slower metabolism. At higher temperatures, the flies should be quicker to do negative geotaxis.

**Material :**

- Test tubes
- Ruler
- Permanent marker
- Ice
- Boiler
- 2 grand container (for bain marie)
- Easily accessible source of water
- A big population of *Drosophila melanogaster*

**Protocol :**

- 1) Use the ruler and the permanent marker to graduate the test tubes every centimeter starting with zero at the bottom.
- 2) Place 5 *Drosophila melanogaster* in each test tubes (with a cap)
- 3) Place 1 test tubes in one grand container with water and ice
- 4) Place another 1 in a grand container with hot water from the boiler.
- 5) Place another 1 on a rack at room temperature
- 6) Let them wait for 5- 10 minutes so that they adapt to the new temperature.
- 7) When ready, take the tube out of the container, and give it a gentle shake so that all the flies fall at the bottom of the tube. Start a chronometer.
- 8) Take a picture every ... second for ... seconds.
- 9) Put the 3 test tubes at room temperature for 10 minutes to "reset" the flies
- 10) Repeat 1 time without changing the tubes.
- 11) Repeat all the above points 3 times but change the tubes between temperatures ( i.e : the tube in the cold container now becomes the tube in the hot container, etc).
- 12) Analyse the pictures based on how much *Drosophila melanogaster* managed to climb back to the top in a certain time (Top will be defined as above a certain mark)