

Biology Residential, October 2011

**Brine Date**

**Sexual selection in brine shrimps**

In this activity you will observe brine shrimps and investigate the differences between the sexes, and then set up an experiment to investigate sexual selection by both sexes. The shrimps will then be left for a few days to make their mate choices.

**Materials for each group**

Brine shrimps Sea water

Small pots with magnifying lids Spoons

Large pipettes with ends cut off Acetate grids

Motic microscopes Beakers

Cavity slides Beaker containing brine shrimps

1. Separate the brine shrimps, putting the females into one beaker and the males into another.
2. Using a spoon or pipette with the end cut off, catch a male and female and observe them in a pot with a magnifying lid or under the microscope to see their differences more clearly.
3. Are there size differences between the males and females? Brine shrimps can be measured using the small acetate grids provided.

You will need to record the sizes of your shrimps as you set up the investigation.

**Setting up the sexual selection investigation**

Brine shrimps choose their mates carefully. Follow the table below to set up the sexual selection investigation.

* Each small group of shrimps should be carefully placed into a beaker with water from the main tank so that the shrimps will have a food supply of algae.

* Do not over feed them as you may trigger an algal bloom which will kill the shrimps. Place them under the light bank for a few days to make their choice.

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| **Beaker 1.**  One large male, one small male and one large female | **Beaker 2.**  One large male, one small male and one small female |
| **Beaker 3.**  One large female, one small female and one large male | **Beaker 4.**  One large female, one small female and one small male |

Record the size of each shrimp in the following table.

Thinking about what is being tested in each beaker and note this in the table.

Predict what you think will happen in each beaker?

Record your results after a couple of days.

Pool your results with the rest of the class before making your final conclusions.

**Information for teachers**

‘Brine Date’ is based *Survival Rivals* activities. The *Survival Rivals* website offers free resources for schools developed by the *Wellcome Trust* as part of the Darwin 200 celebrations, including a ‘Brine Date’ kit box. See [www.survivalrivals.org](http://www.survivalrivals.org) for more details.

The protocols for our brine shrimps activities will be on your SSERC pen-drive. These activities are based on *Brine Shrimp Ecology (2000),* by Michael Dockery and Stephen Tomkins. This publication was developed jointly by the British Ecological Society and Homerton College Cambridge and contains many excellent ideas for practical activities using brine shrimps to teach ecology. A copy of this will also be on your pen-drive.

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| **Expt.** | **Size of brine shrimps (mm)** | **What are you testing?** | **Predict you think will happen?** | **Results- who mated with whom/** | **Was your prediction correct?** | **Conclusion** |
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