Activity 2.16 Reebops

Purpose

- To examine how characteristics are inherited.
- To illustrate one of the ways in which meiosis is responsible for the tremendous variation that exits in every sexual species.

Safety

Students should be told not to eat edible Reebop body parts as hygiene cannot be guaranteed in the lab situation.

The task involves three stages.

1 Before the lesson you will need to make up Mum and Dad Reebop, so that the teacher/lecturer can show the group what they look like and use their features as the starting points for discussions on the inheritance of features from parents.

2 The students are then given envelopes containing the chromosomes of the parents, from which they select (following meiotic principles) half the chromosomes at random.

3 These chromosomes provide the genotypes of the offspring. Using the decoder key provided on the Student sheet, students construct baby Reebops. The offspring are then compared to the parents and to one another.

Constructing the Reebop parents

- Three body segments (large white marshmallows joined in the middle with cocktail sticks as 'ligaments' to hold them in place)
- A head (large white marshmallow) held above the first segment with a cocktail stick.
- A tail made from a cut portion of pipe cleaner. Both Mum and Dad have curly tails.
- Two antennae, which are plastic-covered drawing pins or map pins of the same colour. Choose a colour that you want, for example black.
- Nose, made from either a small orange marshmallow or pin.
- Four legs made from blue map pins.
- Two eyes, from map pins or small marshmallows. Colour, orange?
- Two humps on the body segments, made from miniature marshmallows, held in place with a short piece of cocktail stick.
- Finally, some indication that your Reebop is male or female. We will leave that part to your imagination!

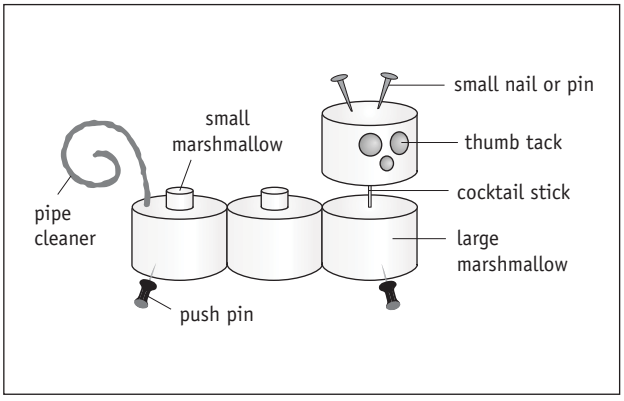


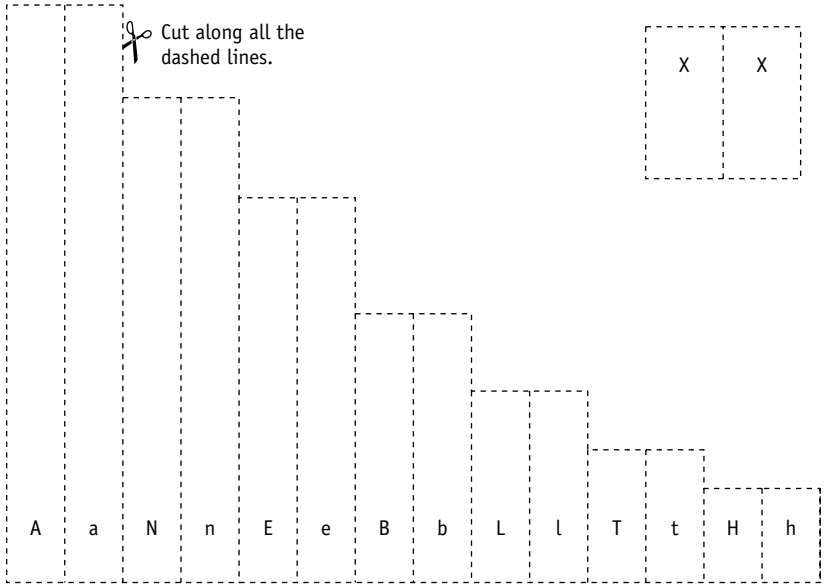
Figure 1 A Reebop parent.

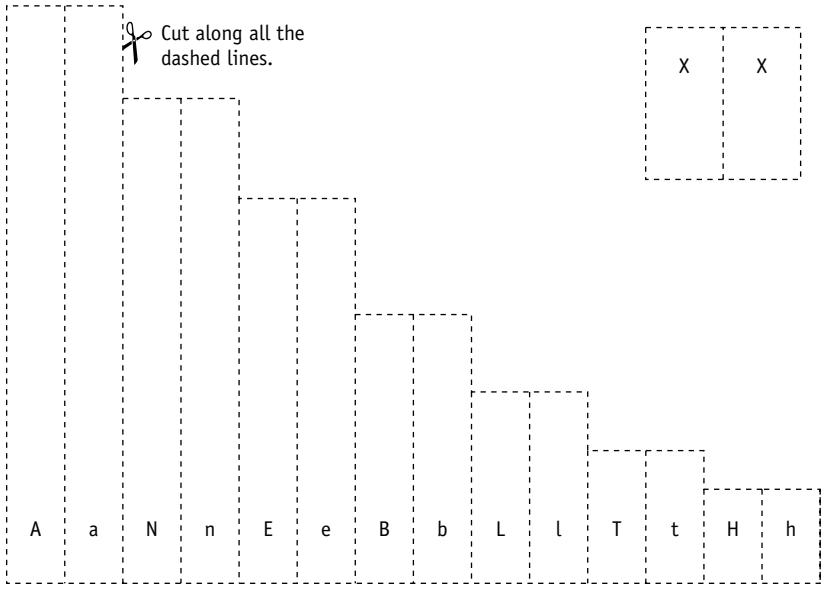
Students breeding Reebops

Requirements per student or group of students	Notes
Large, white marshmallows × 4	Dried out marshmallows work best.
Small, miniature marshmallows of other colours (various numbers needed, but at most 6 in total)	The ones recommended here are orange, yellow and red, but other colours are fine, provided you amend the instruction sheets.
About 5 cocktail sticks (some of these are used as 'ligaments')	
Plastic-covered, coloured map-pins or drawing pins × 8	
Pipe cleaner	
Envelope containing Mum chromosomes set	Templates for these chromosomes are in appendices A and B. Photocopy onto card, *blue* for Dad and *pink/red* for Mum. Some centres find it helps to enlarge the chromosomes from A4 to A3, to make the activity less fiddly. Some also laminate them. These should then be cut up and placed into the envelopes. It's a good idea to put a rubber band around each so that none fall out and get lost. (Students can think of the rubber band as histone proteins or the nuclear envelope!) There are 8 chromosomes, which should guarantee a good range of phenotype expression. If you have a large group of students, then you may want to add more features such as wings or gills.
Envelope containing Dad chromosomes set	

Notes

Appendix A: Mum Reebop chromosomes





Appendix B: Dad Reebop chromosomes