Hunting jelly beans

(Ireland and Denmark)

Background

An outdoor role-play predator-prey game activity was carried out as a model of adaptation. A student "predator" captures as many coloured jellybean "prey" as they can in 10 seconds from a 3m x 3m grassy area. Students recorded the numbers of each colour and group data was collated back in the classroom. The data was analysed, and inferences were drawn. Student ideas and conclusions were elicited through questioning.

You will need:

- ✓ 40 coloured jellybeans
- ✓ Stopwatch
- ✓ Pen and paper

Follow these steps:

Students work in groups of five. One student will be the predator, and four others are each assigned a different colour jellybean ('prey'). One of the four can also be timekeeper, another can be data recorder.

1. Pace out a roughly 3 m x 3 m square area (the hunting area) on the grass.
2. The 'prey' students each take 10 jellybeans, a different colour for each student. One student gets green, another blue etc.

3. The prey students stand at the four corners of the area, and while the predator turns her back on the area, the jellybeans are thrown randomly within the hunting area.
4. The timekeeper starts the clock (10 or 20 seconds depending on the length of the grass) and the predator gathers as many jellybean prey as she can in that time.
5. The number of each colour jellybean captured by the predator is recorded in a suitable table.
6. The hunt is repeated a few times and the capture frequency is recorded each time.
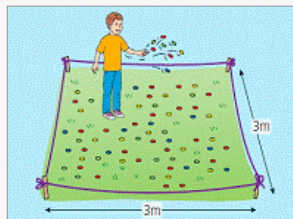
So what happened?

- Averages are calculated for each colour jellybean as a 'capture frequency' (i.e. numbers caught by the predators).
- Each group can present their results in a suitable chart.
- Groups can also combine their data in a whole class table or results displayed on the classroom board.
- Combined data can be presented as a chart and can be compared to the group charts.
- Survival probabilities could be calculated

What next?

- Why are there survival differences within the jellybean population?
- Which prey are better adapted to survive the predator?
- What would happen to this population of jellybeans over a long time?
- Explain how changes in the population occur.

	Green	Brown	White	Orange
Hunt 1	1	1	3.33	3
Hunt 2	0.75	0.75	4	3.25
Hunt 3	0.67	1	0.67	2
Mean capture frequency	0.65	0.91	2.66	2.75