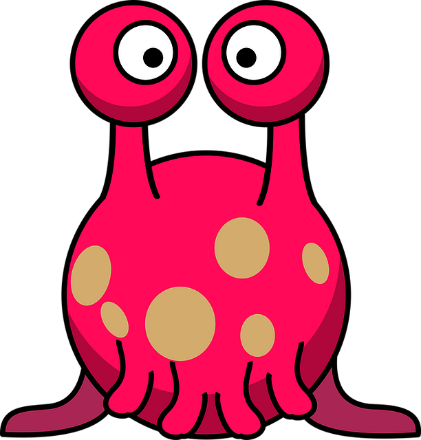
**The hungry alien**



Imagine there’s an alien visiting Earth.

The alien is very hungry.

The alien can only eat organisms made from **a single cell**.

**To do**

1. Sort the organisms into the boxes.

**humans cows sheep trees**

**ants head lice slugs grass mushrooms**

**tadpoles moss bacteria amoeba**

|  |  |  |
| --- | --- | --- |
| The alien **can** eat these organisms |  | The alien **cannot** eat these organisms |
|  |  |  |

1. Write down one word that describes **all** of the organisms the alien **cannot** eat.

|  |
| --- |
| The alien cannot eat ………………………………………………………. organisms. |

*Biology > Big idea BCL: The cellular basis of life > Topic BCL1: Cells > Key concept BCL1.2: Cells and cell structures*

|  |
| --- |
| **Response activity** |
| **The hungry alien** |

**Overview**

|  |  |
| --- | --- |
| Learning focus: | Organisms are made up of one or more cells, which have common structures that carry out life processes. |
| Observable learning outcome: | Apply the idea that organisms are made up of one or more cells. |
| Activity type: | Discussion |
| Key words: | cell |

This activity can help develop students’ understanding that organisms can be made from just one or many cells, in follow-up to the diagnostic question:

* Diagnostic question: Made of cells

**What does the research say?**

Researchers (e.g. Dreyfus and Jungwirth, 1988; Driver et al., 1994; Clément, 2007) have reported a number of misunderstandings that students have about cells, including:

* that a single cell is not a living thing, perhaps because cells are merely structural (like bricks in a wall) rather than functional units capable of carrying out life processes, and therefore that an organism cannot be made of a single cell
* that some organisms are too small to be made of cells
* that there are only two kinds of cells, namely animal cells and plant cells, and hence that only animals and plants are made up of cells.

**Ways to use this activity**

Students should complete this activity in pairs or small groups, and the focus should be on discussion (it is through the discussions that students can check their understanding and rehearse their explanations). Students should work together to follow the instructions on the worksheet or the presentation.

Giving each group one worksheet to complete between them is helpful for encouraging discussion, but each member should be able to report back to the class. Listening in to the conversations of each group will often give you insights into how your students are thinking.

The names of the organisms could be printed and cut up to make cards for a sorting activity. Or the names could be projected with students voting on whether each is unicellular or multicellular.

*Differentiation*

You may choose to adapt or simplify the activity for some students, for example to include fewer organisms or pictures of organisms. Question 2 could be omitted for students likely to struggle with the word “multicellular”.

In some situations it may be more appropriate for a teaching assistant to read and/or scribe for one or two students.

**Expected answers**

Expected answers:

**1** The alien **can** eat these organisms: bacteria, amoeba

The alien **cannot** eat these organisms: humans, cows, sheep, trees, ants, head lice, slugs, grass, mushrooms, tadpoles, moss

**2** multicellular

Students who think the alien can eat ants, head lice, grass, tadpoles and moss may think that an organism is unicellular because it is small. Students who think the alien can eat slugs, grass, mushrooms and moss may think an organism is unicellular because it appears to lack organs or highly developed features.

**Acknowledgments**

Adapted by Alistair Moore (UYSEG) from an activity developed for the York Science project.

Images: pixabay.com/OpenClipart-Vectors (1295828)

**References**

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Dreyfus, A. and Jungwirth, E. (1988). The cell concept of 10th graders: curricular expectations and reality. *International Journal of Science Education,* 10(2)**,** 221-229.

Driver, R., et al. (1994). *Making Sense of Secondary Science: Research into Children's Ideas,* London, UK: Routledge.