chocolate money

Teacher Guide

#### overview

Europeans love chocolate - we eat over half the world's supply! The bad news is that we are eating more cocoa than can be produced and soon chocolate may become a rare and precious commodity as farmers struggle to meet demand. In this activity students apply their knowledge of pollination to discuss why cocoa yields on a plantation are decreasing. They then find out who funds scientific research by taking roles in a funding meeting - can they work out a deal where all parties will benefit?

#### LEARNING OBJECTIVE

In this lesson students will analyse a science issue using:

* Ecosystem: why insect pollination is important in producing our food
* Science in society: understand who funds scientific research

#### Curriculum LINK

England National Curriculum KS3:

* Experimental skills and investigation: ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience
* Biology: Relationships in an ecosystem: the importance of plant reproduction through insect pollination in human food security

#### TEACHING MATERIALS

* The presentation PowerPoint contains both the teaching presentation and the Student Sheets.
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| STAGE/PURPOSE RUNNING NOTES |
| Starter The news story is presented | Display the news story (2). Ask students for their initial thoughts on this. Depending on time constraints and the age of students you could allow time at this point to discuss wider points such as whether we should cut down our consumption of cocoa; possible reasons for global reduction in yields of cocoa and how this issue will have economic, environmental and social effects.The students are put in role working for a chocolate company (3). Highlight the seriousness of the situation for them - if cocoa yields keep decreasing then they will not be able to produce chocolate, profits will suffer and they could lose their jobs.  |
| Main Students apply their knowledge about pollination and role-play a funding meeting | The objectives are shown (4). On the plantation very few flowers form pods (5). Ask students to work in pairs. They use the information about cocoa flowers and their knowledge of pollination to come up with questions they could ask to find out the possible reasons for the lack of pods. Examples could be: Is there enough flies? (This could be an issue because the plantation is too far away from the rainforest). Are flies not attracted to the scent? Is pollen not sticking to flies? Are the stamens producing enough pollen? Is fertilisation occurring?Listen to questions from the pairs and discuss if they could find out the answers. Remind them that a small company would have to employ specialist scientists to carry out the research. Introduce the next task (6). The plantation owner has decided that scientific research is needed, but this will require money. Students get into groups of 6 and role-play a funding meeting. To each group assign three students to be fundraisers from the chocolate company and give them SS1 to plan for the meeting. The other three are funders; assign one to be from the charity, one from the government and one from the big company. They use SS2. If you have groups of more than 6 then assign two students to one funder role. Allow 10 minutes for students to complete their preparation and fill in the top box on their student sheet.The meetings take place. Students meet in pairs: one fundraiser and one funder. During the meeting the funder should ask their questions and fill in the bottom box on their student sheet. Groups then get back together and the funders reveal how much money each will give with their reasons. Fundraisers add up how much they raised to find out if the research can go ahead. |
| Plenary Class discussion on who funds scientific research | Ask students to write down two sentences stating who funds scientific research and why - how do they benefit from it? Discuss these as a class and talk about why scientific research is rarely carried out by just one person. |