

## Cube It! For “Sex in the Orchard”

*Created by Emily Holden of Oregon State University*

### Description

“Sex in the Orchard” outlines how researchers are taking multiple approaches to eliminating pests in pear orchards. In an effort to minimize the use of pesticides, researchers have developed an entire arsenal of techniques that promote sustainability and healthy orchard crops.

Cube It is a game-like method that will increase student literacy and comprehension. The activity allows students to review and analyze material that they have already read, while playing a game. Cube It encourages students to reach a higher level of Bloom’s Taxonomy of Cognitive Thinking.

### Time Estimate

One 45- to 50- minute class period

### Student Outcomes

- Students will examine the concept of Integrated Pest Management.
- Students will explore new techniques designed to limit the need for chemical pesticides.
- Students will investigate the relationship between backyard trees and pest control problems in commercial orchards.

### Standards

#### Science

H.2E.4: Evaluate human impacts on environmental quality and sustainability.

H.4D.5: Describe how new technologies that lead to scientific inquiry are responsible for changes in the ways people live and work.

H.4D.6: Evaluate how ethics, public opinion and government policy influence engineers and scientists and how their results impact human society and environment.

#### Language Arts

EL.HS.RE.01: Read at an independent and instructional reading level appropriate to grade level.

EL.HS.RE.02: Read and understand a wide variety of informational text.

EL.HS.RE.05: Match reading to purpose.

EL.HS.RE.06: Understand and use a variety of comprehension strategies as needed, such as summarizing, class and group discussions and making predictions.

EL.HS.RE.08: Understand, learn and use new vocabulary that is taught through informational text.

EL.HS.RE.15: Read magazines and news stories.

EL.HS.RE.19: Identify and summarize sequence of events, main ideas, facts, supporting details and opinions.

EL.HS.RE.20: Clarify understanding of informational texts by creating graphic organizers.

### Career-Related Learning Standards

CS.PM.02: Plan, organize and complete assigned tasks on time, meeting standards of quality.

CS.HS.01: Locate, process and convey information using traditional tools.

### **Materials**

- Copies of [“Sex in the Orchard”](#) from the 2009 issue of *Oregon’s Agricultural Progress* magazine, a special issue on Food in Oregon
- Copies of the “Sex in the Orchard” Cube
- Scissors
- Glue or tape

### **Vocabulary**

Codling moth: In the larval stage it is a common agricultural pest. It is the worm found in pears, apples and other tree fruits.

Integrated Pest Management (IPM): utilizing multiple methods to control the presence of pests.

Sex pheromones: a chemical released by an organism to affect the mating behaviors of other members of its species.

## Cube It! Procedure

- 1) Divide students in teams of 6 or less.
- 2) Hand out prepared dice, or have students cut out and assemble them.
  - a. Printing the dice on cardstock will result in a stiffer die.
- 3) Have students number a sheet of notebook paper 1 through 6 leaving 6-8 lines between each number.
- 4) Students should read the article as a team.
- 5) Each student should roll the die once until every student has answered a different question, and all 6 questions have been answered.
- 6) Each student should write his or her answer on the sheet of paper. The answers should be written in each student's own words and handwriting.

## Questions to Answer

### 1) Describe it

What is the article about? What is the importance, color, size, shape, etc?

*EX: Using multiple strategies to combat pests. It lowers the amount of chemical pesticide usage needed.*

### 2) Compare it

What is it similar to or different from?

*EX:*

- *It is similar to organic farming because it reduces chemical usage.*
- *Farmers are using different chemicals; some are entirely natural and non-toxic.*
- *Some substances simply confuse pests in order to prevent reproduction; they don't actually kill them.*
- *Farmers are trying to pinpoint when and where pesticides will be most efficient, in order to decrease the amounts of chemicals they are spraying.*
- *It is different from organic farming because it uses harmful chemicals from time to time.*

### 3) Associate it

What does it make you think of?

*EX: It reminds me of all aspects of today's sustainability debate. It is an example of farmers trying to meet the demand for more sustainable practices yet they still rely on chemicals to remain profitable.*

### 4) Analyze it

Tell how it is made or what it is composed of.

*EX: Using pheromones to track codling-moth breeding patterns, targeted pesticide application and other techniques.*

### 5) Apply it

What can you do with it? How is it used?

*EX: Can these techniques be used on other agricultural products? One example would be in apple orchards, where growers are battling the exact same pest.*

### 6) Argue for or against it

Take a stand and list reasons supporting its importance.

*EX: PRO: It is beneficial because fewer pesticides are applied. Growers are still able to generate a profit. In this sense it is truly sustainable. Chemical usage has been limited and the profit can sustain the grower and the family.*

*CON: Chemicals are still being applied. If we want to be organic, is it really fair to interfere with insect habitat?*

# Cube It! Pattern

*Adapted from Dr. Travis Park of Cornell University*

