

# Product Life Cycles

## *A Systems Thinking and Cycles Activity*

Estimated time for activity 1-2 class periods

### GRADE LEVEL



PART 1: GRADES 2-12  
PART 2: GRADES 6-12

### CONNECTIONS TO THE BIG IDEAS OF SUSTAINABILITY



Systems



Place



Community

### CURRICULAR CONNECTIONS



SCIENCE:  
SYSTEMS &  
SYSTEMS MODELS



SOCIAL STUDIES:  
PRODUCTION,  
DISTRIBUTION &  
CONSUMPTION



ELA: READING  
INFORMATIONAL  
TEXT

## Essential Questions

- What is the complete journey of the product?
- How are human and natural systems interrelated?

## Materials

- Pumpkin Life Cycle Cards
- Post-Its
- Markers, crayons, or colored pencils
- Index cards
- List of products

## Background

Everything we consume comes from nature and returns to nature. What is its complete journey, and how is it connected to other systems? As students trace the resources and stages involved in producing some common products they build an understanding of the complexity involved in enjoying something as simple as a slice of pumpkin pie.

\*Note: Part 1 and part 2 can be used as two different standalone activities.

## Activity

### Part 1: Whole Class: Teacher Led Pumpkin Life Cycle Example

*~20 minutes*

1. Together put the Pumpkin Life Cycle cards in order.
2. Prompt: "This is a linear system. What's missing in this cycle? What would we have to add to make this a growth cycle?" Suggested items to add to cycle:
  - Decomposers
  - Compost/fertilizer
  - Pesticides/herbicides
  - Harvesting method(s)
  - Land preparation method for next growing season
  - Details of process to make into pumpkin puree for pumpkin pie (incl. other factory/canning/etc)
  - Other parts of the pumpkin pie (crust, whipped cream, plate, fork, etc)
  - Sun
  - Transportation (farm → factory for pureeing → grocery → house)
  - Harvesting method (tractor/combine/etc)

\*Note: This activity is scalable and can be taken as deep as appropriate for the grade of students.

## Activity

### Part 2: Student Pairs Product Life Cycle

~30+ minutes

3. Each student pair picks an item from the suggested list below and draws its Life Cycle. Include inputs needed to make the product all the way to the disposal of the product. You may choose to split student pairs up into “creation”, “use”, and “disposal” product life cycles too.

- Newspaper
- Coffee
- Pencil
- Jeans
- Flip flop
- Cell Phone
- Soda Can
- Water Bottle
- Granola Bar
- Remote Control
- Ketchup Packet
- Take-Out container

4. Once students have chosen their items, have them conduct research and answer the following questions:

- Where did the materials that make up these products come from? (If a product contains a lot of materials, have the students focus on one material in the product, i.e. oats in a granola bar; not every ingredient; cadmium in a cell phone)
  - First identify the parts of the process that make up the product on individual index cards working backwards (ie. plastic- where does that material come from - ethylene - where does that come from - etc.)
  - Sort the cards in a logical order
- How is this product used? Where is it used? For how long is it used? Think of all the components of the product between creation and disposal.
  - Make an index card/post it for all questions and components of use
- What happens to the product after you use it?
  - Waste (not used again) vs. Recycle vs. Upcycle
  - Renewable vs. Non-renewable
  - Make an index card/post it for all the steps for after use

5. Using the notecards/post its, students draw a model of the “life cycle of the product” on the paper provided and label key stages as identified in step 4.

6. Pairs circulate around the room (Gallery Style) to see the work of others.

- Using post-its students make note indicating: one feature they really liked about the cycle and one question they might have about the cycle

## Reflection Questions

- What surprised you about the product life cycle?
- What energy resources were necessary for your product to complete its journey from cradle to grave?
- Can you think of a product that uses very few natural resources to produce and dispose of?
- What do you think are the long term effects of your product on the environment?

## Additional Resources

- [The Story of Stuff](#)

