



# Developing Human Capital With Paper Airplanes

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## Lesson Description

Students will be given a paper airplane and asked to replicate the design without directions and without taking the completed airplane apart. They will discover that investing in their human capital leads to greater productivity.

## Grades 3 - 4

### Concepts

- **Human Capital:** intangible assets possessed by individuals, including knowledge, talent, skills, health and values
- **Intermediate Good:** A good that is used in the production of final goods and services.
- **Productive Resources:** natural resources, human resources, capital resources, entrepreneurship and intermediate goods used to make goods and services
- **Productivity:** The amount of output (goods and services) produced per unit of input (productive resources) used.

### Standards

#### *Arkansas Economics Standards*

- E.5.3.1: Examine the relationship between human capital and productivity (e.g., division of labor, specialization) D2.Eco.6.3-5
- E.5.4.1: Examine ways human capital impacts productivity and future incomes D2.Eco.6.3-5

#### *Common Core Standards*

##### **Grade 3**

- CCSS.ELA-LITERACY.RL.3.1. Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- CCSS.ELA-LITERACY.L.3.6. Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases.
- CCSS.ELA-LITERACY.SL.3.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.

**Grade 4**

- CCSS.ELA-Literacy.RL.4.1: Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
- CCSS.ELA-Literacy.L.4.6: Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being (e.g., quizzed, whined, stammered) and that are basic to a particular topic (e.g., wildlife, conservation, and endangered when discussing animal preservation).
- CCSS.ELA-Literacy.SL.4.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.

**Objectives**

- Students will define the concept of human capital and be able to identify three ways they developed their human capital.
- Students will be able to identify the productive resources necessary to build paper airplanes.

**Time required**

45 minutes

**Materials required**

- Completed paper airplanes
- 8½ X 11 inch paper
- Rubber Bands
- Tape
- Scissors
- Computer and LCD projector
- Paper Airplane PowerPoint (<http://goo.gl/ialuYo>)
- Optional: Activity 1 - a half page per group

**Teacher Preparation**

- Acquire The Magic School Bus Taking Flight (book or video): Video Link: [https://www.youtube.com/watch?v=gL\\_9fk5n7Jw](https://www.youtube.com/watch?v=gL_9fk5n7Jw)
- Fold one paper airplane for each group using the directions.

**Procedure**

1. Show (all or part) The Magic School Bus Taking Flight or read the book. Discuss the appropriate science concepts for your grade level that relate to flight. Tell the students that you have found the best paper airplane and demonstrate how to fly the plane. Ask the students if they would like to have a paper airplane like yours.

2. Divide the class into groups of 2 or 3. Distribute the completed airplanes, several sheets of paper, tape, scissors and rubber bands to the groups. Challenge the students to create a paper airplane of the same design. Remind them that they cannot take your plane apart.
3. Allow 10 – 15 minutes for the students to work on their planes. Refrain from offering any directions.
4. When time is up, ask students to stop working on their planes. Inspect any that were finished to see if they match the example plane. Note how many planes were completed correctly.
5. Review productive resources with the students. Ask:
  - a. What were the capital resources you used? (*scissors, tape dispenser*)
  - b. Who were the human resources? (*students*)
  - c. What were the natural resources used? (*none*)
  - d. What were the intermediate goods used? (*tape, paper, rubber band*)
6. Ask the students what would have made producing the planes easier. (*Directions, experience producing paper airplanes, etc.*)
7. Display the second slide of the PowerPoint or distribute Activity 1. Ask the students to try folding the plane again.
8. Allow 10 minutes for the students to work on their planes, refrain from demonstrating any of the directions.
9. When time is up, ask students to stop working on their planes. Inspect any that were finished to see if they match the example plane. Note how many planes were completed correctly.
10. If the number of completed planes increased this round, ask the students to suggest reasons that happened. (*Directions made the task simpler*)
11. Ask the students if they would like to follow step-by-step directions and learn how to make the planes. Display the PowerPoint. Work with the students to correctly fold the plane.
12. After completing the PowerPoint, assess how many planes are correctly folded. Note the number. Ask the students why the number increased. (*Answers could include: they knew what they were doing, they had experience, etc.*)
13. Remind the students that with each additional piece of paper airplane folding information, they got better at it.
14. Tell the students that if they needed to produce 100 paper airplanes for (*activity of your choice, such as having a distance contest, field day, selling them at a school market, donating them to the children's hospital, etc.*), do they think that producing the planes will get easier or harder the more they practice? (*easier*)
15. Explain that as they learn something new and practice that skill they are “training their brain.” Tell the students that economists call “training your brain” developing your human capital. Ask:
  - a. “What happened to the number of planes the more you “trained your brain” to produce them? (*the number increased*)
  - b. “What are some other ways they are developing their human capital or “training their brain?” (*learning multiplication tables, learning to read, etc.*)
16. Allow students to complete several planes.

**Closure/Assessment**

Have the students write a letter to their parents that explains what human capital is and 3 things they “trained their brain” to do that day.

### Directions for the Rubber Band Paper Airplane

1. Fold the paper in half lengthwise.
2. Fold the upper two corners in at a 45 degree angle. Be careful not to cross the center line. (Should look like a tall house.)
3. Fold the “roof” edge to the center line on both sides. (should look like a tall teepee)
4. Repeat previous step.
5. Turn plane over so that the openings are on the bottom.
6. Fold along the center line.
7. Place a small piece of tape along the top to keep the plane together and the wings level.
8. Place a small piece of tape along the bottom to keep the folds together and reinforce the area where the slit will be cut.
9. Cut a slit in the bottom of the plane at a 45 degree angle pointed towards the nose of the plane.
10. Slide a rubber band into the slit to use as a launch mechanism.

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