

Student Journal: Pasta, Partners and Procedures

Name:

Class:

Day 1:

- 1) Step 1: Silently write your observations (what thoughts and questions came to your mind while listening to the learning target, watching the pasta car pictures and looking at the materials we will be using.
  - a) Thoughts:
  - b) Questions:
- 2) Step 2: Think-Pair-Share activity Reflection:
  - a) What new information or questions did you learn while listening to your partner?
  - b) What are the easiest and hardest parts of listening?
- 3) Step 3: Listen to the directions for the Observation activity and document your answers below:
  - a) An observation is:
  - b) Qualitative observations are:
  - c) Quantitative observations are:
  - d) Another name for observations, measurements and information is \_\_\_\_\_./

EXIT TICKET DAY 1: Summarize in your own words what you learned about making observations today.

Day 2:

- 1) Step1: View the following PDF:  
<https://www.teachengineering.org/k12engineering/designprocess>
  - a) Explain in your own words (Summarize) what observations you have about the Engineering Design Process.
  - b) Think-pair-share your summary with your partner- wait for teacher signal
  - c) Review your summary with anything you have learned or any new questions you have.
- 2) Step 2: Design Challenge: Build and test a vehicle capable of rolling down a ramp and then coasting freely as far as possible. Your vehicle will be constructed of dry pasta and glue only. The winner is the pasta car that travels the longest distance beyond the bottom of the ramp.
- 3) Step 3: Criteria and Constraints.
  - a) [https://www.teachengineering.org/content/ucd\\_/activities/ucd\\_derby/ucd\\_derby\\_activity1\\_rules\\_v2\\_tedl.pdf](https://www.teachengineering.org/content/ucd_/activities/ucd_derby/ucd_derby_activity1_rules_v2_tedl.pdf)
  - b) Quick Rubric URL: <http://www.quickrubric.com/r#/qr/casscw/pasta-->

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- c) What do we want the product to do? What constraints (barriers, limits, rules) do we have? (supplies, time frame, etc.)

Day 3:

- 1) Step 1: "Interview your partner Activity" Listen for directions first.
  - a) What is your name?
  - b) Favorite food?
  - c) Favorite thing to do when not in school?
  - d) Favorite music/artist to listen to?
  - e) What is your dream job?
  - f) Do you have any pets? Describe them if so.
  - g) Unique facts about yourself (Examples...do you play instruments or speak any other languages, etc?)
  
- 2) Step 2:  
[https://www.teachengineering.org/PDF/edp/TE\\_EDPTeacherMaterials\\_8.5x11.pdf](https://www.teachengineering.org/PDF/edp/TE_EDPTeacherMaterials_8.5x11.pdf)Day 2)  
View the steps of the engineering design process: Research, Imagine, Plan and Create.
  
- 3) Step 3: Brainstorming session:  
Conduct research by searching car designs on Google  
Examine the types of pasta you will be using.  
Discuss together the ideas you have for a design.  
Each person should take a turn getting to show their idea for a design and explain it while others listen.

Creating your team Model Prototype

When your team is ready, you must create a model prototype pasta car that rolls down the track. Your team must show the model to your teacher when ready to build your first prototype. Model must include the types of pasta to be used for each component.  
How can technology help you with creating a model?

Day 4-5:

- 1) Step 1: Build, experiment and test partially built vehicles to make sure they roll and can make it down the ramp for troubleshooting before trials begin.

Day 6-7

- 1) Step 1 Trials and Data: Your teacher will review the competition rules and expectations for trials with you.

2) Step 2 Complete Data Table for trials 1-3 below:

a) To convert inches to centimeters (cm):

Multiply by 2.54

b) Look at your measuring device (ruler, meter stick, measuring tape) and compare one inch to the centimeters. WHY do we multiply by 2.54 to get from inches to centimeters?

	Trial 1 inches	cm	Trial 2 inches	cm	Trial 3 inches	cm	distance /time	Speed in cm/s
Distance traveled Inches and cm)								
Time (s)								

c) Which trial had the furthest distance? \_\_\_\_\_(inches and centimeters)

3) Complete Data Table for trials 4-6 below WHEN APPROVED (after modifications:)

	Trial 4 inches	cm	Trial 5 inches	cm	Trial 6 inches	cm		
Distance traveled								
Time								

Which trial had the furthest distance? \_\_\_\_\_(inches and centimeters)

EXIT TICKET:

a) Why did the top pasta cars work so well?

- b) What sorts of design changes did you make from what you learned from your interim and troubleshooting tests?
- c) If you had one more chance to improve your prototype, what changes would you make?

Day 8:

- 1) Step 1: Rubric completion directions given by your teacher.
- 2) Step 2: Answer the following questions:
  - a) What other problems in society can be solved using a process like this?
  - b) If you completed a science fair project or investigation, how is this process similar and different?
  - c) What new or different knowledge did you gain from this project?
  - d) What new or different skills did you gain from this project?
  - e) What new or different abilities did you gain from this project?