

## Becoming Engineers: Modeling

Name: \_\_\_\_\_ Group: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

Based on the clues you have been given, come up with a story that explains the mystery pedestrian?

Version 1:



Now, with the additional clues, rewrite your story.

Version 2:

### Expense Report:

Total Funds: \$100

Model 1:

Model 2:

Model 3:

Define Engineering:

List 3 reasons to use scales/models:

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**Model 1: Design a simple culvert that will allow water to pass under a road. Scale = water flow is 3 fingers wide**

**Sketch**

**Evaluate:** Does this culvert model allow for water to flow under a road? How?

**Describe** any possible concerns you have with the function of this design.

**Model 2: Snow melt and spring rains results in high volumes of water. Modify your model to allow for an increase in water volume. Scale = water flow is 2 fists wide**

**Sketch Modified Model:**

**Evaluate your first model:** what would happen to Model 1 during high water flow?

**Describe your second model:** How do the modifications to Model 1 allow for water flow considering high seasonal volumes?

**Model 3: Consider what else needs to move up and down-stream. Based on your understanding of fish life cycles and stream formations, revise your model to accommodate a more natural steam flow. Scale = water flow is 2 fist wide**

**Sketch**

**Evaluate your second model:** Would sediment and debris be able to pass through your culvert? What would a fish need to successfully pass through your culvert?

**Describe:** How do the modifications to Model 2 allow for more natural stream function (fish and debris passage)?

**What further questions could you ask/data would you need to collected to determine if your culvert design would provide for natural stream flow (allowing passage of debris and aquatic life)?**