THE OHIO STATE UNIVERSITY

Modeling with Mathematics

Module 1

Mathematics Teaching Institute, July 27-31, 2015

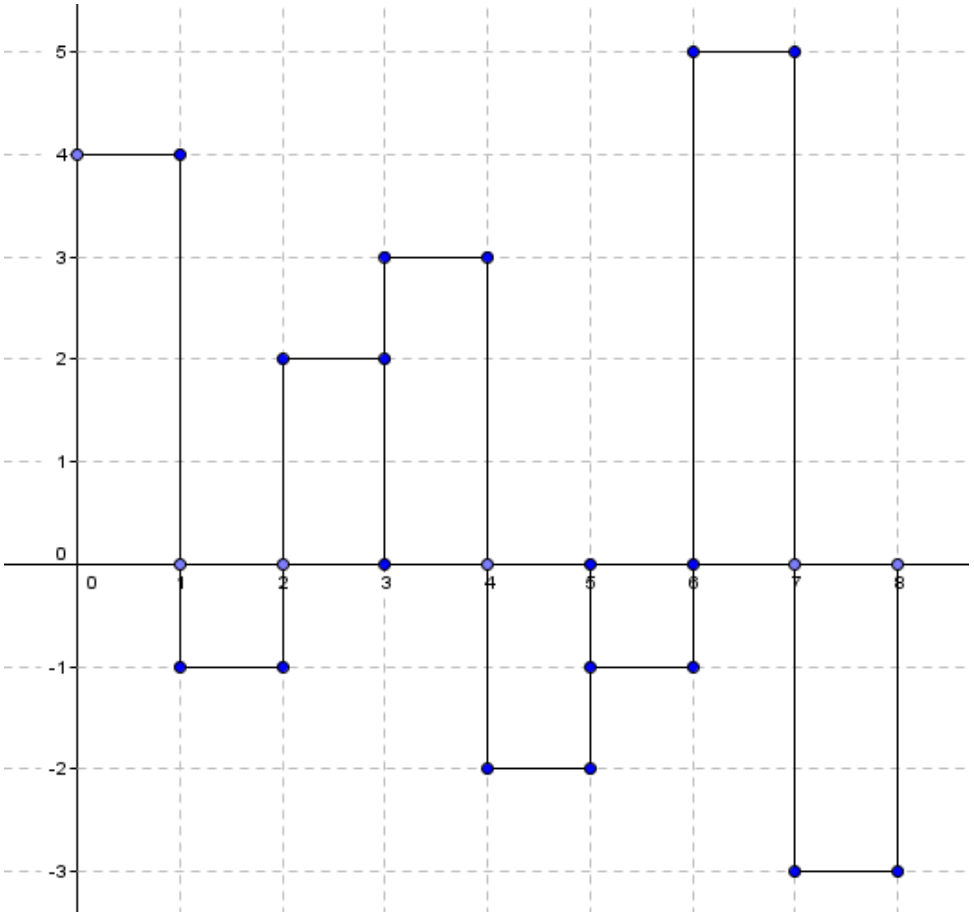
Sponsored by Ohio Department of Education

Record the events you see.

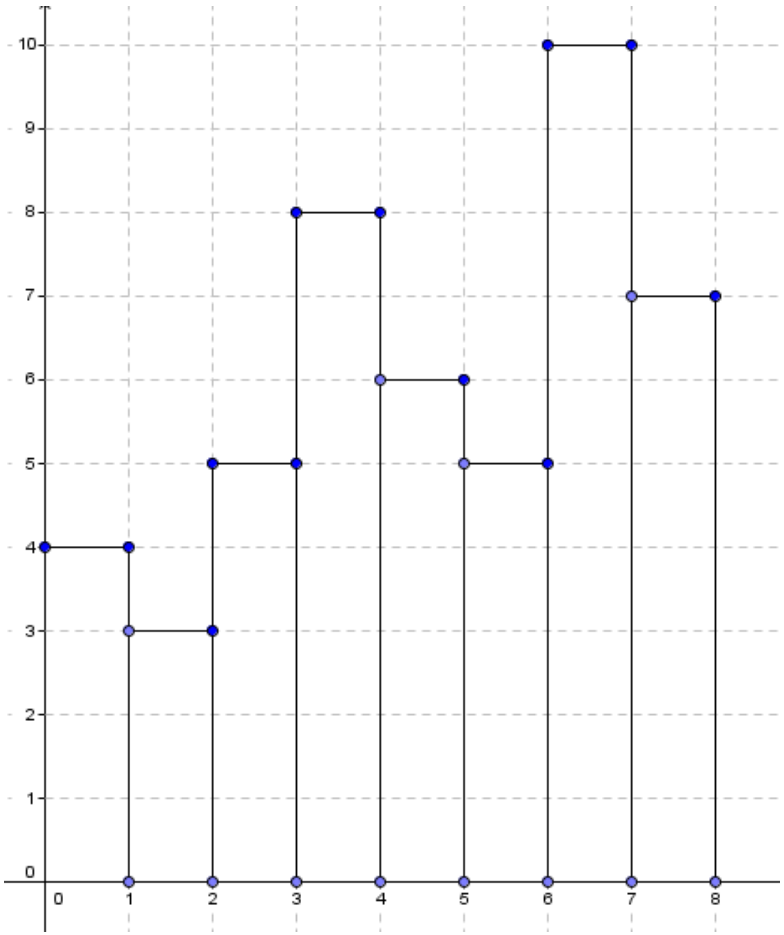
Be as explicit as possible in your recordings. Imagine that if you were to give your description of the event to someone not in the room so she could replicate it.

First Event:

In and out– what is inside?



Instantaneous Change



Cumulative Change

If we are given one type of growth documentation can we produce the other?

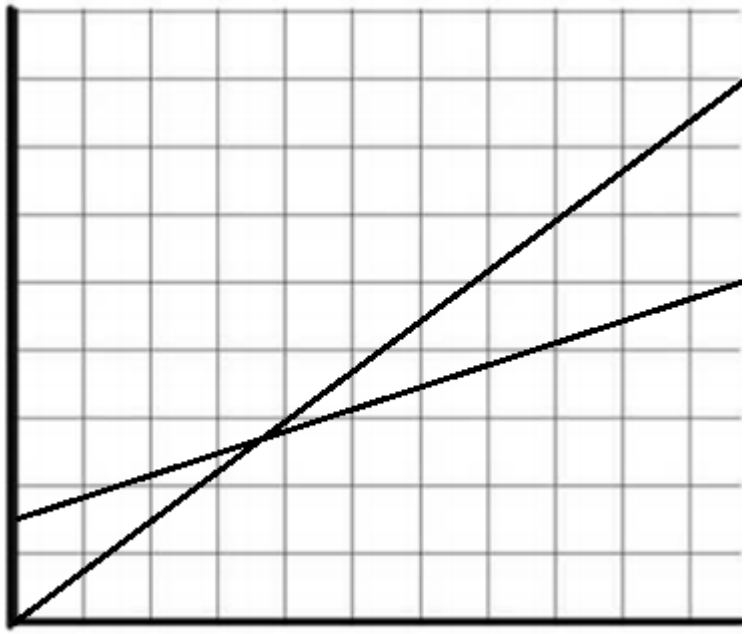
Again, document what you see in a way that you believe is complete.

Tossing a ping-pong ball:

What are the different ways we can capture this event?

Each representation tells a story. Different representations offer different story-telling styles and focus on a specific detail while privileging certain things and keeping some (existing, related) things to be deduced.

Describe a story that could explain the following graph.



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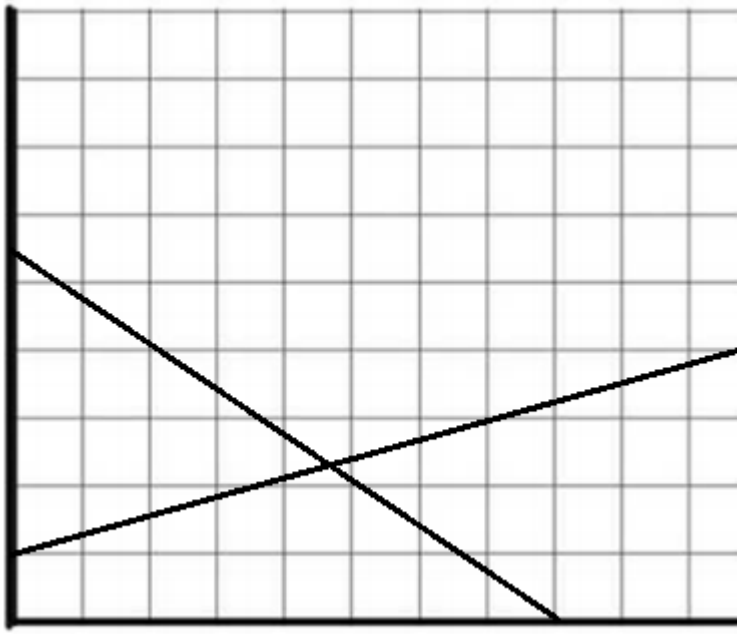

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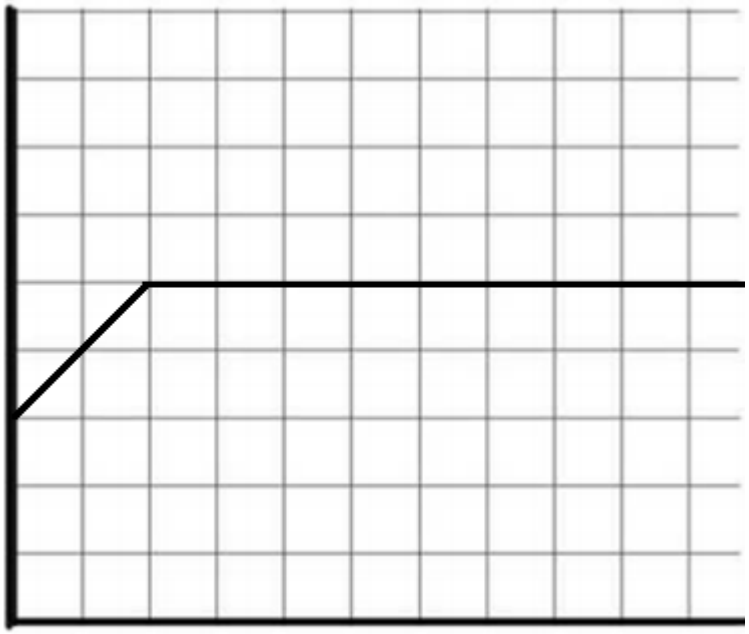

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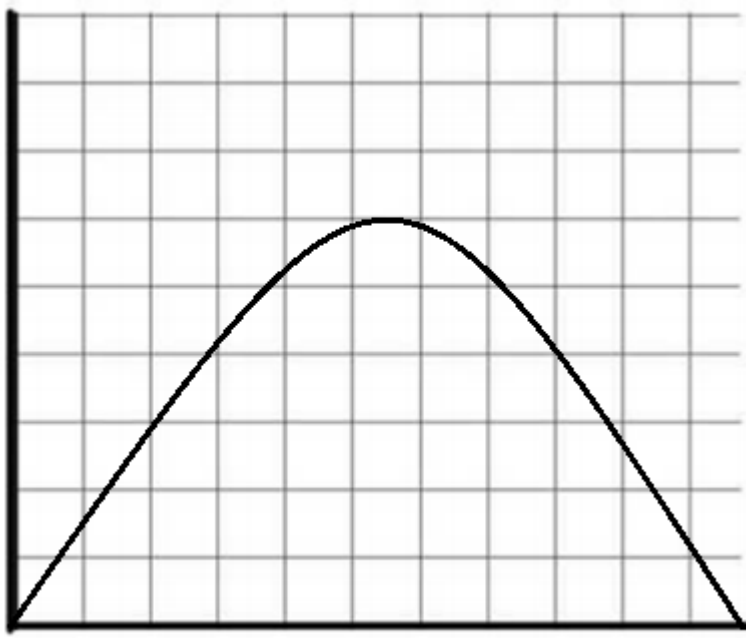

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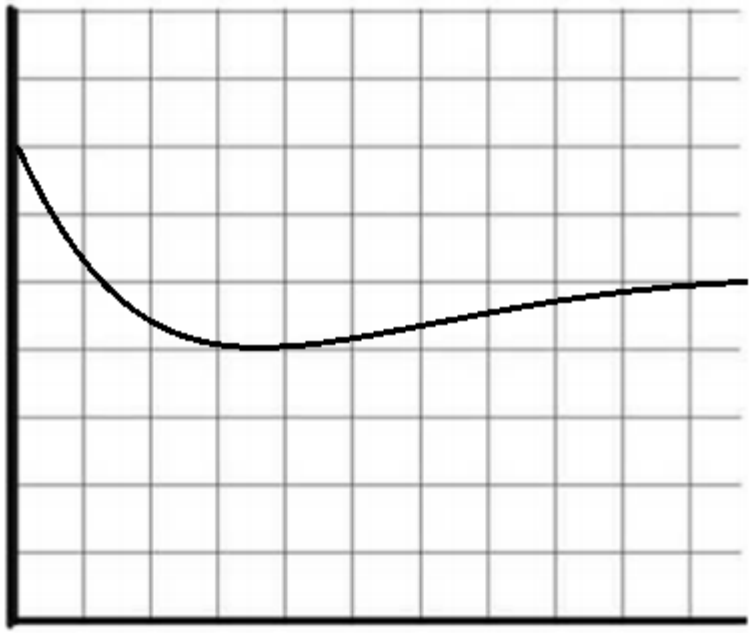

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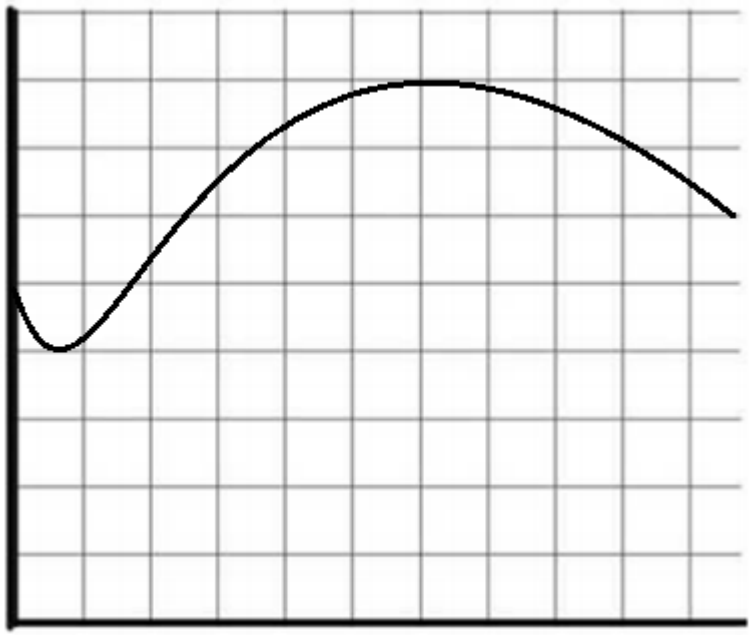

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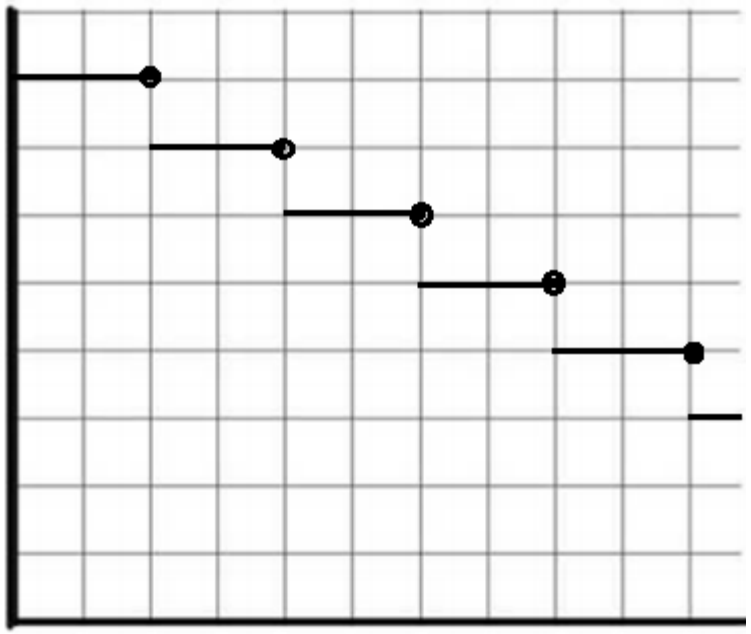


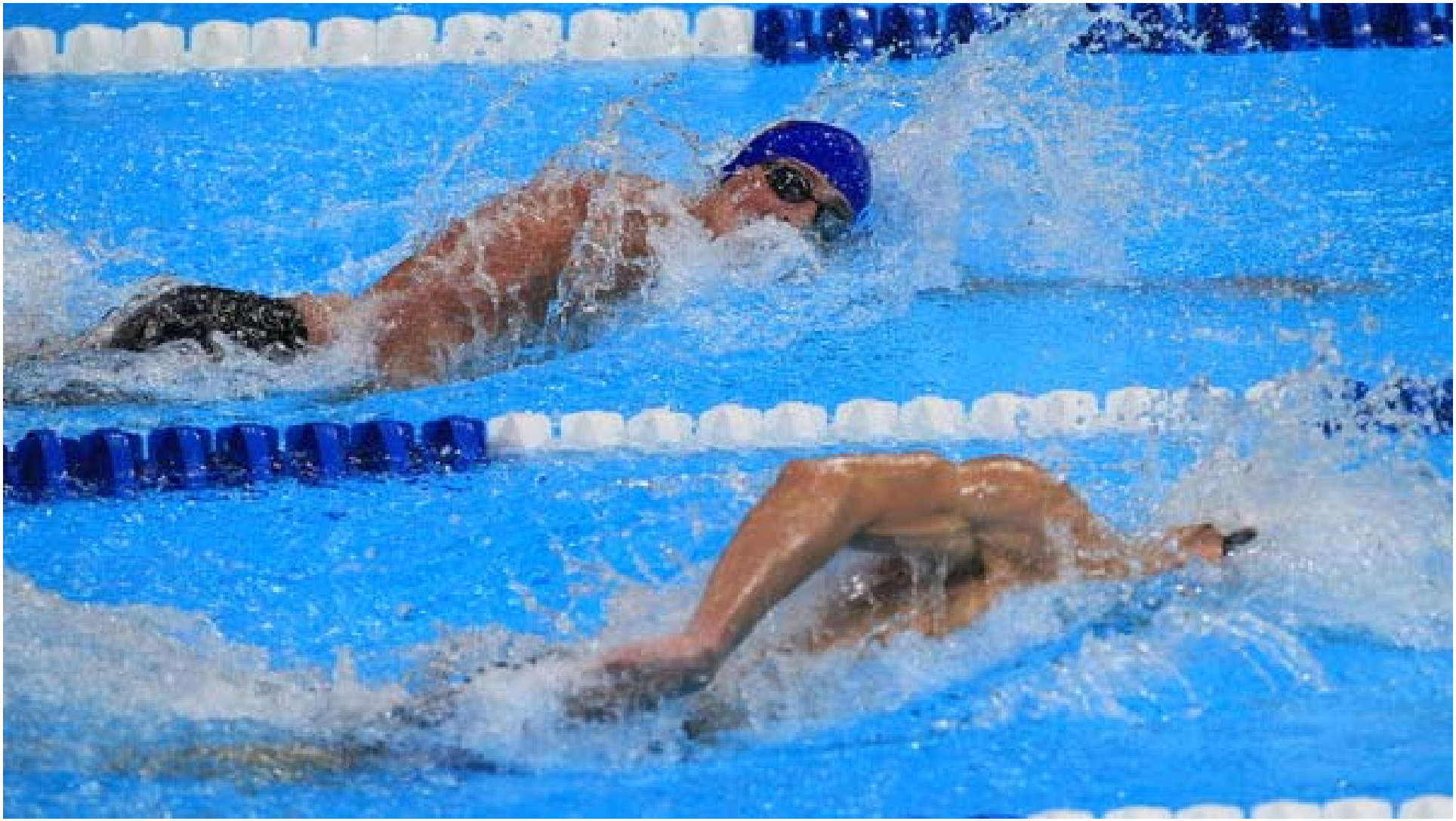
Again, document what you see in a way that you believe is complete.

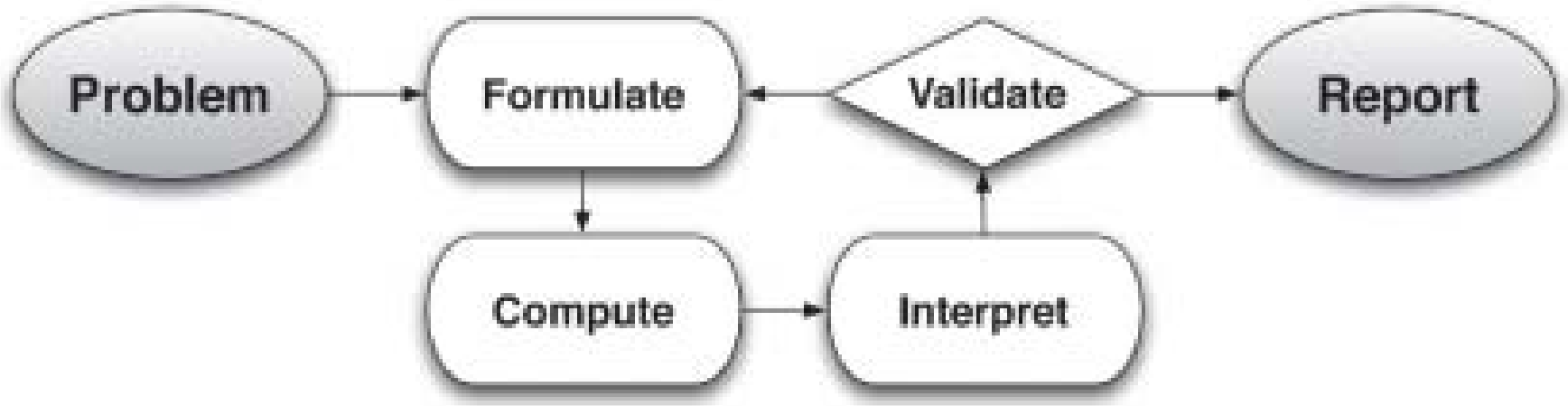
Pouring water:

What are the different ways we can capture this event?

Mathematics is a tool for expressing phenomena!

Use mathematics to capture the event




Problem
Formulate
Validate
Report
Compute
Interpret