

# Science Learning Progression

FOSS Models and Designs

Grade 6

## Prerequisite knowledge:

Plan an investigation for a given research question.

Define and give examples of *models* and assess their *limitations*.

### Investigation 1:

Part 1 Black Boxes  
Part 2 Building (*Offering a variety of supplies, not only the kit materials*)  
Part 3 Drought Stopper

I can develop *conceptual models* and *construct physical models*.  
I can identify limitations for each model.

Describe each model and its limitations.

Use a *model* to test a *hypothesis* and better understand *phenomena*.

Investigation 2:  
Humdingers

I can *formulate a hypothesis* and create a *model* to represent the behavior of a *system*.

Students compare their model to the actual Humdinger.

Identify *controlled and manipulated variables* and *apprise* how they're related.

Investigation 3:  
Part 1 Free Rolling Carts

I can design a cart that will roll down a ramp and across the floor.  
I can identify the controlled and manipulated variables in the design.  
I can describe the relationship between the controlled and the manipulated variables.

Think /Pair/ Share  
No Hands Questioning

Measure and record the effect of a *manipulated variable* on a *responding* (dependent variable).

Investigation 3:  
Part 2 Self-propelled go-carts  
Part 3 2-meter run

I can modify the cart so it will travel 2 meters on the level without an external push or pull. I can record trial results on a data table.

Journal or discussion: Look at your data table: How does the data help you evaluate the performance of your car?

Plan and perform a *controlled experiment* that tests a *hypothesis* about a relationship between two *variables*.

Investigation 4  
Cart Tricks

I can plan and conduct an investigation to modify a cart so it will perform tricks.

Performance assessment

For an experiment to be valid, all controlled variables must be kept the same whenever possible.  
Models are used to represent objects, events, systems, and processes.  
6-8INQ D E

Later big ideas that build on this big idea include:  
Increased abilities in --  
Competence in using mathematics;  
Making connections;  
Improving communication and collaboration;  
Participation in a community of learners.  
9-12 INQ

