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Selection in Action

Prep Instructions

These are the instructions for setting up the activity. Instructions for building and preparing each obstacle can be found in the *Obstacles* document.

Part I - Mutation Cards and Obstacles

The following items will be required for the prep of this part of the activity:

- index cards
- pen or marker
- Lego blocks for hereditary mutations
- identifying markers (popsicle sticks, straws)

Step 1

Take a package of index cards and select enough cards so that there is one card per student. On half of the index cards write "Neutral Mutation: remove three Lego or K'Nex pieces and exchange them for pieces that are the same size but a different colour." Take the other half of the index cards and write "Acquired Mutation" on them. Then, take half of the "Acquired Mutation" cards and write "add four extra Lego or K-Nex pieces to your car". Take the remaining "Acquired Mutation" cards and write "remove four Lego or K'Nex pieces from your car".

Step 2

Half the cars will carry hereditary mutations, which must be created before class. Hereditary mutations are add-on pieces that students must attach to their cars. When these cars reproduce, they must pass these mutations on to their offspring. For each hereditary mutation, five to eight Lego blocks will be needed to create an appendage that will be added to the chosen cars.

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Selection in Action - Prep Instructions

Part II

The following items will be required for the prep of this part of the activity:

- materials for Part I obstacle of choice
- identifying markers (popsicle sticks, straws, coloured sheets of paper)

Step 1

Decide which obstacles will be used for the first round. Examples of Round One obstacles would be:

Vibrating Surface Station
Ramp and Masking Tape Parameter
Speed Bump
Archway
Water and Ramp
Seasons

Step 2

Construct the obstacles for Round One.

Step 3

Choose one or two obstacles that every car must pass in order to survive. For example, passing the Vibrating Surface Station and the Water and Ramp could be essential to survival. Find an identifying marker, such as coloured sheets of paper, popsicle sticks or straws. These will be given to students to keep track of whose cars survive the "must pass" obstacles. For the remaining obstacles, the cars may be allowed to survive even if they do not make it through successfully.

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Part III

The following items will be required for the prep of this part of the activity:

- materials for Part I obstacle of choice
- identifying markers (popsicle sticks, straws, coloured sheets of paper)

Step 1

Decide which obstacles will be used for the second round. Examples of Round Two obstacles would be:

Ultraviolet Box
Monster Pendulum
Ramp/Path
Archway II
Hamster Wheel
Ramp and Bubble
Founder Effect

Step 2

Construct the obstacles for Round Two.

Step 3

Choose one or two obstacles that every car must pass in order to survive. For example, passing the Ultraviolet Box and the Hamster Wheel could be essential to survival. As with Round One, the identifying marker will be given to students whose cars pass the "must pass" obstacle to keep track of who has survived. For the remaining obstacles, the cars may be allowed to survive even if they do not pass.

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Selection in Action - Prep Instructions

Immediately Before Class

Depending on the available class time, the entire *Selection in Action* activity can be completed in one day or it can be done over two days. If the activity will be completed over two days, Part III can be performed on the second day and the obstacles for Part III will need to be set up immediately before the second class period.

Step 1

Set up the obstacles for Part II. A large table or several desks pushed together works well. Alternatively, use individual student desks (one obstacle per desk). There should also be room on the floor for several of the obstacles. If performing the activity entirely in one day, set up the obstacles for Part II at this time.

Step 2

Cover the obstacles with a large blanket or tablecloth so that the students cannot see them. This is very important; the obstacles should in no way influence students during the car building process. If students are aware of the obstacles while building their cars, they might try and modify their vehicles to be better suited to the challenges.