

Name:

Date:

Class:

Design Brief

Instructions: You will use your knowledge of friction and surface roughness to design a table-top game that uses sliding friction as a main game mechanic, such as a shuffleboard, table hockey, etc. Your prototype will include the design and construction of:

- A game board with a score pattern.
- Game rules and directions to play.

Design requirements and constraints:

- The design fits in a box that measures 80 cm x 30 cm x 5 cm.
- The surface of the board is modified to alter surface roughness.
- Game rules and directions are easy to understand.
- The game is safe to play indoors; no moving part is too heavy or too sharp to cause harm.
- The game is fun for children ages 12 to 14.

Use the engineering design process and what you have learned about friction and surface roughness to design and build a prototype. You have a budget of \$100, and the following materials are available to you.

Project budget: \$100	
Item Description	Cost per Unit
Cardboard	\$5 per square foot
Sandpaper	\$2 per sheet
Masking tape	\$5 per foot
Rubber band	\$10 each
Cardboard cutter	\$5 per rental per day
Glue stick	\$3 per stick (free glue gun rental!)
Scissors	\$1 per rental per day
Rulers	\$1 per rental per day
Recycle/reuse material	\$0 (free)
Other material	Market price (at your teacher's discretion)