

Busy Bins for \$5 or less

Paper Tube Engineering Challenge

MATERIALS

- Pom Pons
- Marbles
- Plastic Golf Balls (or other small balls)
- Cardboard Tubes of all sizes (Toilet Paper, Paper Towel, Wrapping Paper, etc)
- Painters Tape**
- Printable challenge cards available at: www.STEAMengineOKC.org/freebies#busybins
- Muffin Tin or Egg Carton
- Other recycled containers
- Stopwatch or Watch/Clock with Second-hand
- Scissors*

INSTRUCTIONS

- Identify an empty wall that is accessible to your child and test a piece of tape to make sure that it won't damage the wall surface.
- Complete the challenges on the printable challenge cards.

Note: Challenges 1-10 are taped to a wall, Challenges 11-12 are "free-standing"

*You can cut the tubes in half lengthwise to have more building materials.

**Younger children may need help tearing the tape. You can tear multiple pieces at a time and place them on wax paper or the edge of a table.







CHALLENGE #1:

Design a run or course that lasts at least 30 seconds

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CHALLENGE #2:

Test a run with different balls, pom pons, etc. Which is fastest? Why?

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CHALLENGE #3:

Test a run with different balls, pom pons, etc. Which is fastest? Why?

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CHALLENGE #4:

Create a game/scoring system to go along with Challenge #3. Play it.

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CHALLENGE #5:

Design a run or course with two different routes.

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CHALLENGE #6:

Test the marble run in Challenge #5 ten times. Which route is faster?

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CHALLENGE #7:

Test other objects in your run. Make predictions. Were you right?

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CHALLENGE #8:

Make a run out of other recycled containers. What makes the best run?

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CHALLENGE #9:

Design a run including a "drop" (where the object leaves the tube) into another tube.

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CHALLENGE #10:

Test different angles or methods of connection. What works best?

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CHALLENGE #11:

Try building a free-standing course. How long can you make it?

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CHALLENGE #12:

Try building a free-standing course. How tall can you make it?

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