



BIG BLUE

PLAY PLAN

THE BALL RACES

STANDARDS:

Physical Education Standards K-2: 1.2.1 Demonstrates a variety of locomotor skills with the concepts of space, effort, and relationship awareness.

Math K.G.A.1 Describe objects in the environment using the names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.
Math 1.G.A.1 Distinguish between defining attributes (e.g. triangles are closed and three-sided) versus non-defining attributes (e.g. color, orientation, overall size); build and draw shapes to possess defining attributes.

Science K-2-ETS1-3 Analyze data from tests of an object or tool to determine if it works as intended.

SET UP: Place blocks and balls in the center of the play area and divide children into teams. Mark a starting line and a finish line where all ramps will converge.

Intro:
Today, you are engineers creating ball ramps! Each team will build a ramp using the blocks. Then, we will race the balls to see which ball travels the farthest.

Goals:
Today we are learning to work together, hypothesize, and change our ideas based on observations and data.

Rules:
You have 15 minutes to construct your ball ramp.

- ✓ Teams take turns choosing 2 blue blocks at a time from the block pile to build their ramp.
- ✓ All ramps must end at the same point (forming a straight finish line).
- ✓ Balls will be released—not pushed—from the top of each ramp.
- ✓ The ball that travels the farthest wins.

Optional: teams may exchange up to 3 blocks with other teams and reimagine their ramp to try again.

Planning the play:
Before you build with the blocks, huddle with your team.

- ☞ What angles will probably work the best for your block ramp?
- ☞ Which blocks will make the angles you want?
- ☞ Everyone in your group should be involved.
What are some jobs everyone could do? Delivery?
Construction? Testing? Planning and leading?
- ☞ Will you exchange jobs or keep the same?

Provide the students with 15 minutes with ongoing countdowns throughout their play. Ask prompting questions when issues arise, but avoid giving any answers to solve construction or social issues, as this is the magic of play! Students will learn and internalize their new skills and creativity when they get opportunities to solve their own problems. Some prompting questions could be:

What might happen if your ramp is too steep or too flat? Are your blocks stable enough for the ball to roll? How can you make the ball travel farther without pushing it?

Encourage experimentation: adjusting angles, layering blocks, and thinking creatively about height and slope.

Ball Races / Testing Phase

Line up all ramps to end at the same finish line. Guide students to release each ball without pushing, letting gravity do the work and testing their ramp's efficiency!

Observe which ball travels the farthest, discussing each structure along the way.

Optional: After the first round, allow teams to exchange up to 3 blocks, rebuild their ramps, and run a second round to see if their redesign improves the distance.

Discussion prompts:

Which ramp made the ball go the farthest? Why?

Did steeper ramps or taller ramps work better?

What changed when you swapped blocks or adjusted your design?

Reflection

Ask students:

What design strategies worked well?

How did teamwork help you build a better ramp?

What would you do differently next time?

How did exchanging blocks with another team help your design?

A step further, Thinking like an engineer

Think about slope, stability, and height—how did those affect the ball?

Did the ball travel further because of a steeper start or a smoother path?

Open Free Play

Allow 10–15 minutes of open ramp-building play:

Teams can build taller ramps, longer ramps, or ramps with curves.

Encourage experimenting with different ball types or combining ramps into a mega-ramp.

Observe and ask reflective questions, but let students solve design problems and experiment themselves.

Awards & Positive Recognition

Celebrate creativity, teamwork, and problem-solving:

Farthest Ball – ramp that launched the ball the farthest

Most Creative Ramp – unique shapes, angles, or designs

Best Teamwork – shared ideas, solved challenges together

