

Test the Track

Use before-and-after results to judge a design.

K-PS2-2 "Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull. Clarification Statement: Examples of problems requiring a solution could include having a marble or other..."

NAME _____

DATE _____

Teacher: this page is run aloud. The script and answers are on the guide page.

1 SPEED CHANGES

Track Test Results

Same toy. Same push. Same time. One square = one space.

Design	Before	After
A		
B		
C		

a

A

B

C

b

A

B

C

2 DIRECTION CHANGES

Guide Test Results

Before: straight ahead



A



B



C



The dot is the start. Follow the arrow to the finish.

a

A

B

C

b

A

B

C

HOW TO RUN THIS PAGE

Analyze these made-up test results together. Each design uses the same toy, starting push and time before and after the change. Read labels and count shaded spaces with students; let them decide and explain. No experiment is required.

Students never read directions on this sheet. Read each part's script aloud, then each prompt, giving think time before students mark.

PART 1 • SPEED CHANGES

SAY “Each shaded square shows one space traveled during one count. Compare each design’s Before and After rows. All spaces and counts are the same size and length.”

ROW	SAY	STUDENTS CIRCLE
a	Which track change meets a faster goal? Circle its letter. Use the Before and After distances to explain.	A
b	Which track change meets a slower goal? Circle its letter. Explain what changed in the distance traveled.	C

PART 2 • DIRECTION CHANGES

SAY “Before each guide was added, the toy traveled straight ahead, toward the top of this page. The arrows show the observed paths after each guide was added. Follow each path with your finger.”

ROW	SAY	STUDENTS CIRCLE
a	Which guide turns the toy toward the right of this page? Circle its letter and explain using its path.	C
b	Which guide turns the toy toward the left of this page? Circle its letter and explain using its path.	B

WHAT TO ACCEPT

Speed: A changes from 2 to 4 spaces in equal time (faster); C changes from 2 to 1 (slower); B stays at 2. Direction: C turns right, B turns left, A stays straight. Accept pointing and oral evidence of meeting the goal. Do not teach friction as a mechanism.