

Part
I

THE SPINNER

For this challenge, you will need a fidget spinner to test. First give your spinner a nickname. Then record your spinner's brand, materials it is made from, number of weights, color, and size. Measure the diameter (length from one tip to another tip across the center) and the thickness with a ruler. Be sure to indicate the units you used to measure. Finally, draw your spinner. Show and label any specific features like curves, points, weights, bearings, or other designs.

NICKNAME OF SPINNER

BRAND/CREATOR

COLOR

MATERIALS

NUMBER OF WEIGHTS

DIAMETER

THICKNESS

ILLUSTRATION

THE SPIN

Spin each fidget the same predetermined amount of times. If you are working with a small group or partner, you may split the spins - just be consistent and do the technique as marked on the technique page each time. Time the length of the spin - use either minutes and seconds or just seconds. Be sure to circle which you used. The spin is over when the spinner no longer moves on its own. If the spin ends due to human error (bumping it for example) check the box.

Number of trials (spins):
Circle one or choose your own (realistic) number.

3
 5
 10

Length of Spin

SPINNER NICKNAME:	MINUTES AND SECONDS -OR - SECONDS (CIRCLE ONE)	HUMAN ERROR
Spin 1		<input type="checkbox"/>
Spin 2		<input type="checkbox"/>
Spin 3		<input type="checkbox"/>
Spin 4		<input type="checkbox"/>
Spin 5		<input type="checkbox"/>
Spin 6		<input type="checkbox"/>
Spin 7		<input type="checkbox"/>
Spin 8		<input type="checkbox"/>
Spin 9		<input type="checkbox"/>
Spin 10		<input type="checkbox"/>

THE DATA

List your trials (1, 2, 3, 4...etc.) and the total seconds of each in the table. You will use this data to find the average length and make a graph.

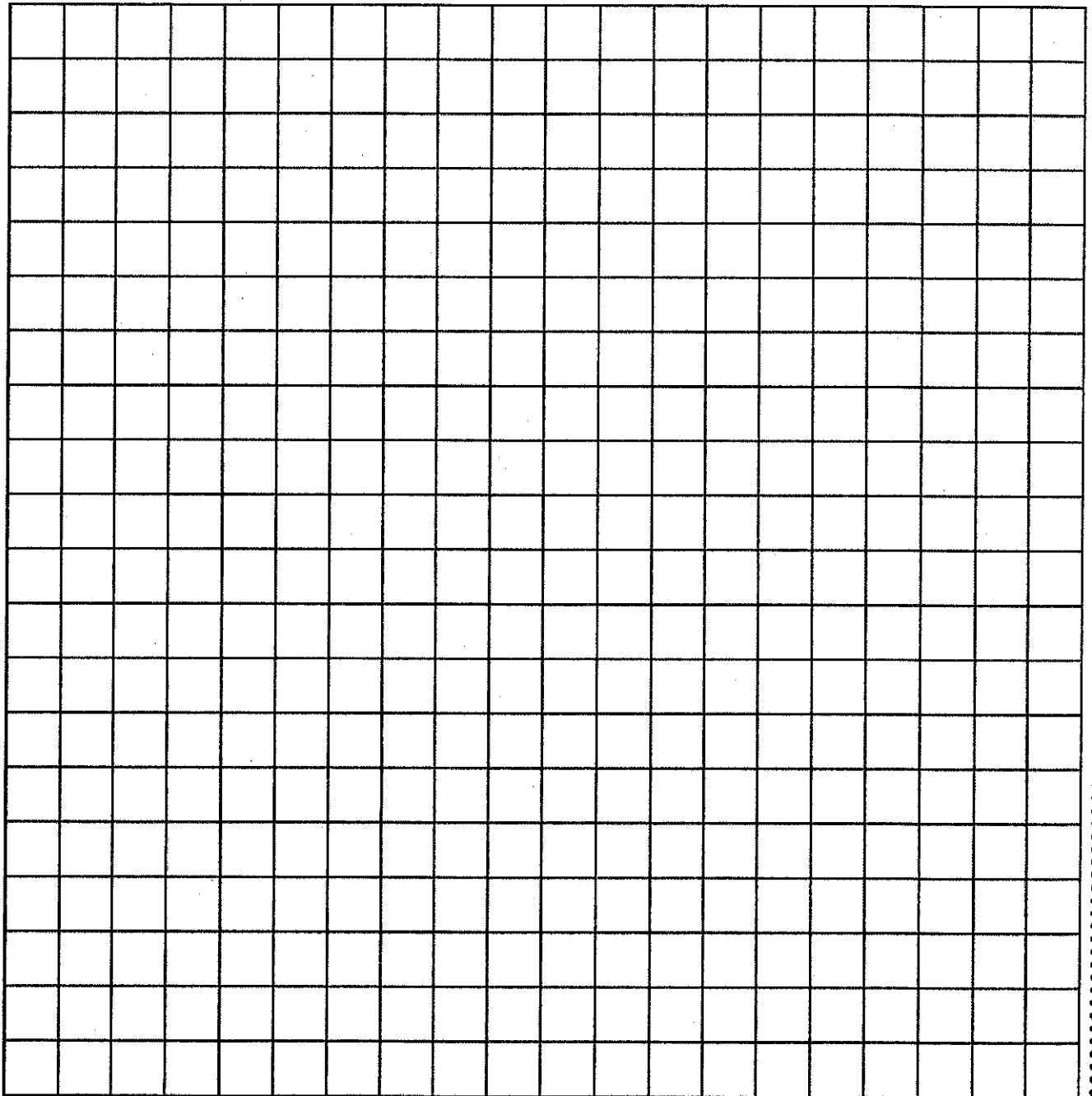
TRIAL	TOTAL SECONDS

THE GRAPH

Use the data to create a bar graph of the total seconds each spin lasted. Title your graph and label the trials and seconds. Think about how to label your y-axis to fit your data best.

(Title)

Spin Time in Seconds



Trial Number

CLASS DATA

Share and record the data with classmates to determine which spinner stayed spinning the longest on average. Use the average spin length for spins that did NOT end with human error.

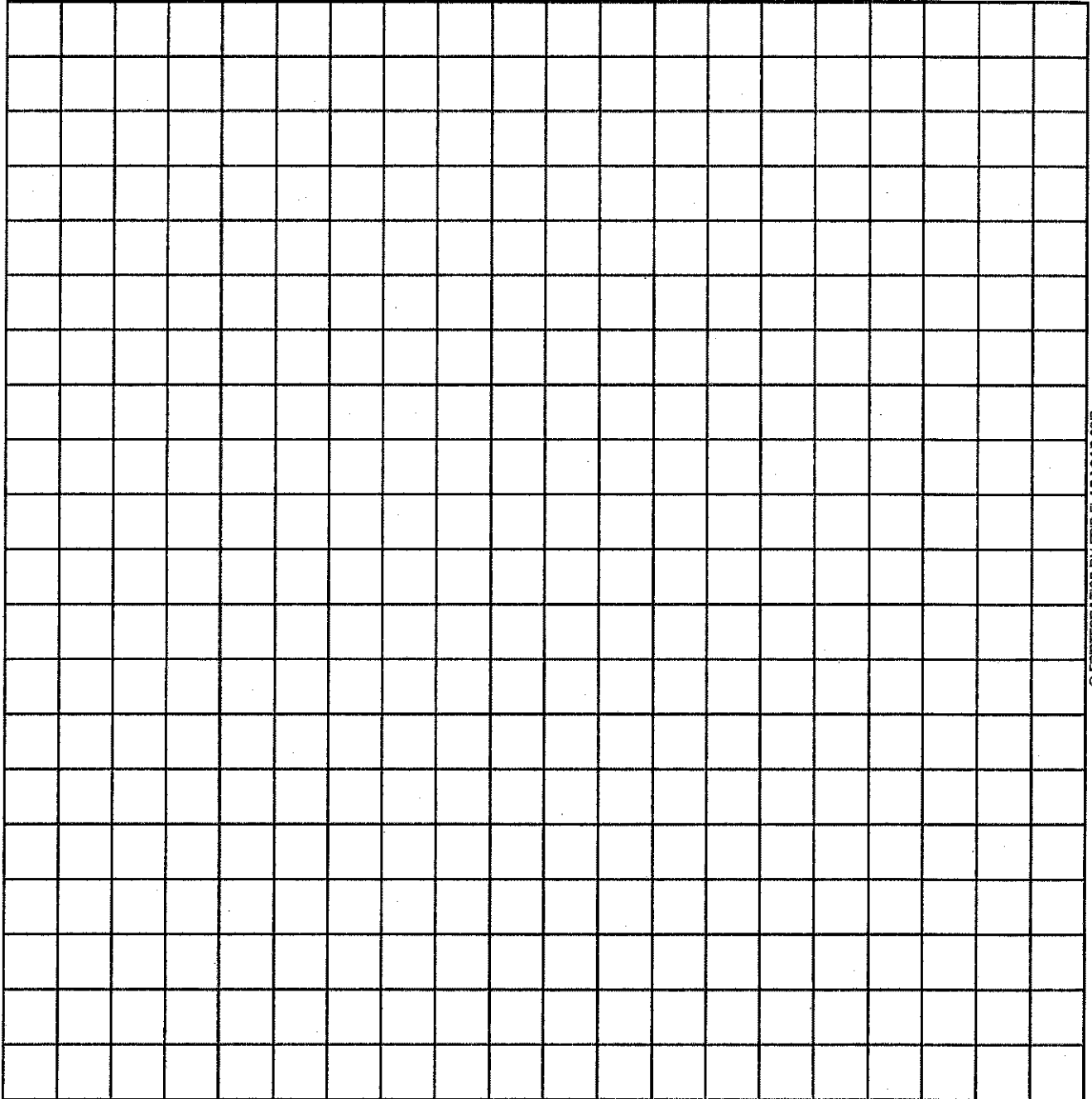
SPINNER NICKNAME:	AVERAGE LENGTH OF SPIN IN SECONDS W/O HUMAN ERROR

CLASS GRAPH

Use the data to create a bar graph of the average length of spin for your class data. Title your graph and label the spinner nicknames and average seconds. Think about how to label your y-axis to fit your data best.

(Title)

Average Spin Time in Seconds



Spinner Nickname

THE RESULTS

Which spinner stayed spinning on average for the longest time? Have that team share and demonstrate their technique.

What variable in their technique do you think helped their fidget stay spinning the longest? Why?

Change your technique to mirror the technique used by the student/group with the longest spinning fidget. Time a few trials using the new technique - does changing your technique help your fidget spin longer? If not, what else might effect the length of time a spinner spins?

Look at the top 3 longest spinning fidgets. What design choices do those spinners have in common? What design did you notice seems to correlate with longer spin times?

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DESIGN YOUR OWN

Use what you have learned from your data and your classmates' data to design your own fidget spinner. Your goal is to design a spinner that will hypothetically spin the longest. Label the parts of your spinner and the materials each part is made from.