Majority in Motion

Read two-way data in segmented bars.

A1P.DSP.D.35.a "Summarize categorical data for two categories in two-way frequency tables and represent using segmented bar graphs."

NAME _____ DATE _____

MAJORITY SWITCHES

Each bar shows one group, and each small section represents one person. Choose SWITCH when the larger category changes from the top bar to the bottom bar.

At a film festival, shaded means comedy. The top bar has a comedy majority, but the bottom bar does not.



MAJORITY STAYS

Choose STAYS when the same category is larger in both bars. Compare the shaded and unshaded shares within each bar, even when the groups have different totals.

In a garden survey, shaded means choosing vegetables. Vegetables have the majority in both groups.



1 SORT

8 items

For each figure, circle SWITCH or STAYS; then choose two figures, make a two-way frequency table for each, and explain your choices using the shaded percentages.

1.

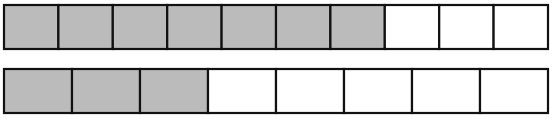


Figure 1

SWITCH STAYS

2.



Figure 2

SWITCH STAYS

3.



Figure 3

SWITCH STAYS

4.



Figure 4

SWITCH **STAYS**

5.

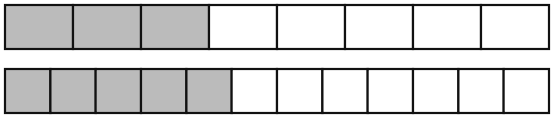


Figure 5

SWITCH **STAYS**

6.



Figure 6

SWITCH **STAYS**

7.

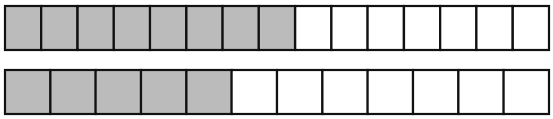


Figure 7

SWITCH **STAYS**

8.

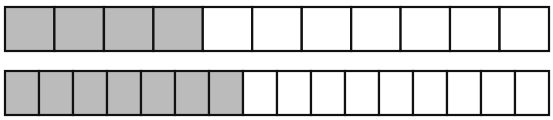


Figure 8

SWITCH **STAYS**

2 PROVE IT

Explain your thinking

Pick two items from Part 1. For each one, tell how you knew where it belonged.

ITEM # _____ **HOW I KNEW** _____

ITEM # _____ **HOW I KNEW** _____

3 MAKE YOUR OWN

One of each

Create one new SWITCH example and one new STAYS example: for each, give the shaded and unshaded counts for two groups and the shaded percentage in each group.

SWITCH

STAYS

CHALLENGE

A survey finds that 26 of 40 ninth graders and 10 of 25 tenth graders choose streamed music; the others choose radio. Make a two-way frequency table with row and column totals, draw a 100% segmented bar graph for the two grades, and state whether the majority choice switches or stays.

ANSWER KEY # Majority in Motion

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	Figure 1 (fractionbars)	**SWITCH**	Shaded is 70% of the top bar and 37.5% of the bottom bar, so the majority switches.
2	Figure 2 (fractionbars)	**SWITCH**	Unshaded is the majority on top; shaded is the majority on the bottom.
3	Figure 3 (fractionbars)	**STAYS**	Shaded is the majority in both bars.
4	Figure 4 (fractionbars)	**SWITCH**	Unshaded is the majority on top; shaded is the majority on the bottom.
5	Figure 5 (fractionbars)	**STAYS**	Unshaded is the majority in both bars.
6	Figure 6 (fractionbars)	**STAYS**	Shaded is the majority in both bars.
7	Figure 7 (fractionbars)	**SWITCH**	Shaded is the majority on top; unshaded is the majority on the bottom.
8	Figure 8 (fractionbars)	**STAYS**	Unshaded is the majority in both bars.

PART 2 · PROVE IT

Accept any explanation that names the deciding feature from the rule box for the chosen item.

PART 3 · MAKE YOUR OWN (SAMPLE ANSWERS)

- **SWITCH**: Group A has 8 shaded and 2 unshaded, so 80% is shaded. Group B has 3 shaded and 7 unshaded, so 30% is shaded.
- **STAYS**: Group A has 3 shaded and 9 unshaded, so 25% is shaded. Group B has 5 shaded and 6 unshaded, so about 45.5% is shaded.

Challenge: Table counts: ninth grade, 26 streamed and 14 radio, total 40; tenth grade, 10 streamed and 15 radio, total 25. Column totals are 36 streamed and 29 radio, for 65 students. In the graph, the ninth-grade bar is 65% streamed and 35% radio; the tenth-grade bar is 40% streamed and 60% radio. The majority SWITCHES.

For Part 2, each table should use the two bars as its rows and shaded and unshaded as its columns. Accept rounded percentages when they support the correct majority comparison.