Popup Observation Sheet

Table I: Measure of ∠A and ∠B

	Measure of ∠A	Measure of ∠B	Observations
Popup #1			
Popup #2			
Popup #3			

Table II: Measure of ∠C and ∠D

	Measure of ∠C	Measure of ∠D	Did the popup stay inside the card when the card was closed?
Card 1 Data			
Popup #1 on line 1			
Popup #1 on line 2			
Popup #2 on line 1			
Popup #2 on line 2			
Card 2 Data			
Popup #3 on line 1			
Popup #3 on line 2			

As you work, reflect upon the following questions:

- How are angles A and B on each popup related? Do you notice a pattern?
- Does every popup stay inside the card when the card is closed?
- How do the measures of angles C_1 and D_1 compare?
- How do the measures of angles C_2 and D_2 compare?
- How does line 1 and line 2 make each popup look different?

Develop Your Theory

Did you know that mathematicians, like scientists, use observations to make educated guesses? In mathematics, these educated guesses are called **conjectures**. Let's look at the two tables above and your three completed cards to make conjectures about the geometry that makes v-fold mechanisms pop.

Two objects have symmetry when one object has the same size and shape as another after a flip, turn, or slide. Where do you notice symmetry on your popups and cards? What data from Table I or Table II supports your observations?

Can you identify how symmetry might be important to the movement of the popups?

What variables are affecting the height or range of motion of each popup?

If a popup extends outside the closed card, what changes could you make to the popup or card to keep the popup inside the card?