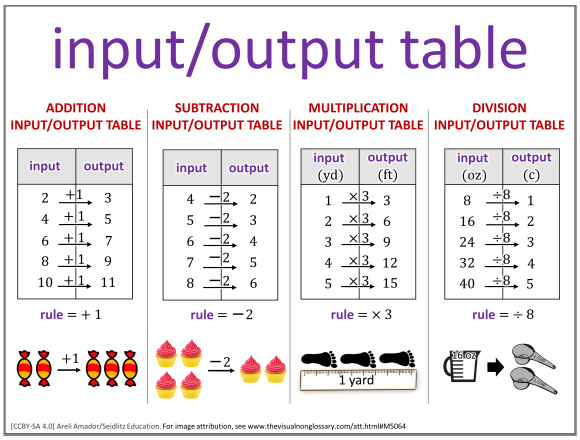
Teacher Guide for the Lesson on **input/output table**



Standard:
5.8(C)

Content Objective:
We can identify and apply **rules** to complete an **input/output table** using number patterns.

Language Objective: Answer the following question in complete sentences using the sentence stem and the key vocabulary of the lesson:

> Input/output tables can have more than one **rule**. How could you identify the different **rule**s that apply to **input/output table**s?
>
> *You could identify the different **rule**s that apply to an **input/output table**s by...*

Other key vocabularies: coordinate plane, rule

By studying this visual, students might:

Notice	Wonder
• There are two columns labeled input and output.	• How do I figure out the rule for the input/output table?
• The numbers in the input column increase by the same amount.	• Can the rule be multiplication or subtraction instead of addition?
• There's a pattern between input and output numbers.	• What would happen if the rule changed?
• The output numbers follow a consistent pattern.	• Could there be more than one rule that works?
• The rule tells how the input changes to become the output.	• Why do we use input/output tables in math?

EXTENDING THE DISCUSSION

- After randomly calling on students, if there is anything from this list that was not mentioned, then ask the class, "Did anyone notice...?"
- After students have shared what they notice, ask the class, "Did anyone wonder...?" using the suggestions above or anything else you might think is interesting or relevant to the lesson.

Structured Conversation Prompts

OBSERVATIONAL	RELATIONAL	INFERENTIAL
What is an **input/output table**? An **input/output table** is...	How is **input/output table** related to **coordinate plane**s? **Input/output table**s is related to **coordinate plane**s because...	Input/output tables can have more than one **rule**. How could you identify the different **rule**s that apply to **input/output table**s? You could identify the different **rule**s that apply to an **input/output table**s by...

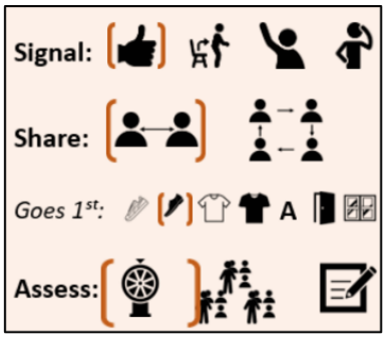
Example Student Responses to the Observational Question

Low-Level	High-Level
An **input/output** table is a chart with numbers that follow a **pattern**.	An **input/output table** is a tool that shows a number pattern using a **rule** to connect the **input** and **output** values.

RESPONDING TO RESPONSES

Emphasize and celebrate each student's use of the key vocabulary to support a culture of "no wrong answers."

STRUCTURING STUDENT CONVERSATIONS



Have students list observations from the visual as a warm-up, then use the Q-SSS-A process to guide small-group conversations. In the slide decks, brackets can be moved to prepare the structured conversation. In the example to the right, students will be instructed: Q-SSS-A.

- To put a thumb up, then lower their hand when they are ready to answer the question
- To share with their elbow/shoulder partner, and that the student with the darkest shoe will share first
- That they will be randomly called on after the conversation

Here is an example of structuring a conversation with Q-SSS-A.

Note: the inferential question is the same as the language objective. It is recommended that students answer the inferential question in a small-group discussion before answering it individually as the closure or exit ticket of the lesson.

Structured Reading

READING PURPOSE	PAT LIST	POST-READING DISCUSSION
Let's read to find out how **input/output tables** and graphs help us figure out the **rules** that connect numbers.	• What an input/output table shows • How a rule connects input and output • What the numbers in the table represent • How a rule can be different in each table • What happens when the same rule is used with different input numbers	What clues can you find in an **input/output table** or its graph that help you figure out the **rule** being used? *One clue that helps me figure out the **rule** is...*

STRUCTURING THE READING

Communicate the purpose of reading to the students and instruct them to make a note every time they see something on the PAT ("Pay Attention To") list. How you have students note items on the PAT list is up to you. This could include:

- Putting an asterisk in the margin
- Underlining text that supports the PAT list
- Putting a comment in the margin

Follow the reading with the post-reading discussion. Structure this discussion using the Q-SSS-A process just like the structured conversations in this lesson.

Note: you might find the relational question is better discussed before or after the reading. This depends on whether the relational question is directly related to the reading or might make connections across units.

DIFFERENTIATING THE READING

You will notice that three different reading passages are provided with this lesson. Look at the shapes in the top-left of each passage to determine the grade level.

BELOW GRADE LEVEL	ON GRADE LEVEL	ABOVE GRADE LEVEL
		
Triangle is bottom-left	*Square is bottom-left*	*Circle is bottom-left*

In a class with students at diverse reading level proficiencies, you can give the appropriate reading passage to different students, while having all students follow the same PAT list and post-reading discussion.