

Simple Steps

Predicting steps in a growing pattern

AIM

Students will identify growing patterns and predict steps in the pattern design.

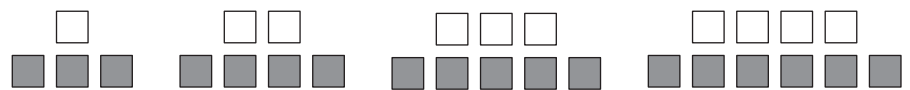
MATERIALS

- Red and blue tiles
- 7 signs: "Picture 1", "Picture 2", "Picture 3", "Picture 4", "Picture 5", "Picture 6", and "Picture 10"
- 1 copy of the blackline master (opposite) for each student

REFLECTION

Refer to the pattern in Question 1 on the blackline master. Ask, *How can we quickly figure out how many red tiles are in a picture? Is it helpful to look at the number of tiles in Picture 1? Do we need to look at more than one picture?* Invite volunteers to share their ideas.

- 1** Seat the students on the floor and use the tiles to make the pattern shown below.



Picture 1



Picture 2

Picture 3

Picture 4

Place the matching sign below each picture in the pattern and ask, *How many red tiles are in Picture 1? How many red tiles are in Picture 4?* Invite several responses. Place the signs for Pictures 5 and 6 at the end of the pattern, then ask, *How many red tiles will be in Picture 5? How many in Picture 6?* Invite a student to make the red component of these 2 pictures. Ask, *Are there more red tiles than the picture number? (No.) Is the number of red tiles the same as the picture number? (Yes.) How many red tiles will be in Picture 10?* Place the "Picture 10" sign on the floor and ask a student to make the red component. Repeat the discussion for the blue components.

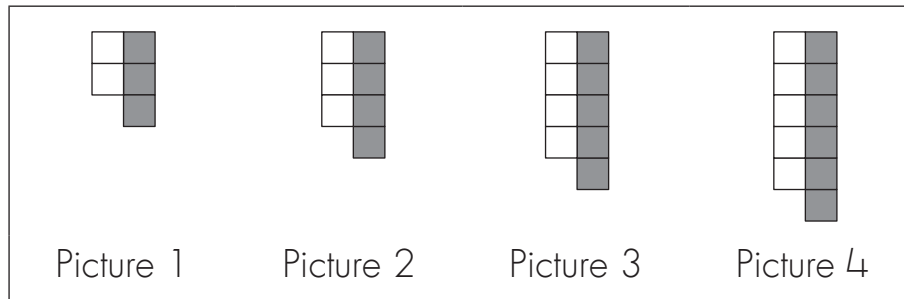
- 2** Ask, *Which picture will have 8 red tiles and 16 blue tiles? (Picture 8.) Which picture will have 15 red tiles and 30 blue tiles? (Picture 15.)* Ask volunteers to extend the pattern to check the answers.

- 3** Direct the students to work in pairs to complete the blackline master. Allow time for them to share and justify their answers. Afterward, for each of the two questions, ask the students which picture will have 12  and 13 .

Simple Steps

Name _____

1.

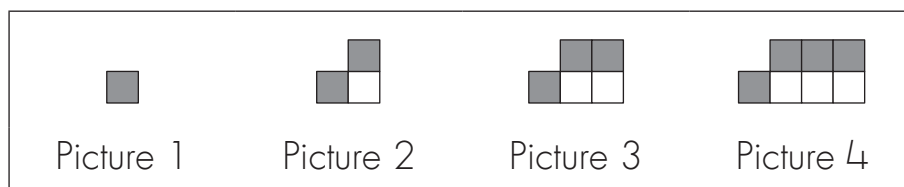


- a. How many are in Picture 1? _____ Picture 2? _____ Picture 3? _____
How many are in Picture 1? _____ Picture 2? _____ Picture 3? _____

Imagine the pattern continues.

- b. How many will be in Picture 5? _____ Picture 10? _____
How many will be in Picture 5? _____ Picture 10? _____

2.



- a. How many are in Picture 1? _____ Picture 2? _____ Picture 3? _____
How many are in Picture 1? _____ Picture 2? _____ Picture 3? _____

Imagine the pattern continues.

- b. How many will be in Picture 5? _____ Picture 6? _____ Picture 10? _____
How many will be in Picture 5? _____ Picture 6? _____ Picture 10? _____