INTRODUCING RATIO

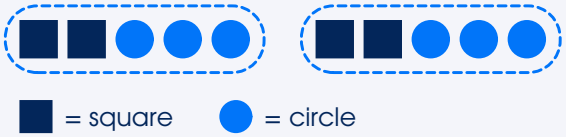
BUILDING BLOCKS

NAME _____ CLASS _____ DATE _____

KEY IDEA

A ratio compares one group with another.

For every 2 squares, there are 3 circles.



■ = square ● = circle

1 Look at the shapes. They are in groups.



a) How many squares in each group? ☐

b) How many circles in each group? ☐

c) For every ☐ square, there are ☐ circles.

2 Complete the sentence for each picture.

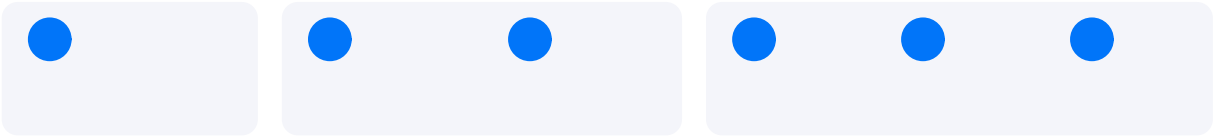
a) 

For every ☐ star, there are ☐ triangles.

b) 

For every ☐ triangles, there is ☐ square.

3 For every 1 circle, there are 2 squares. Draw the squares in each box.



1 circle **2 circles** **3 circles**

a) How many squares go with 3 circles? ☐ b) With 5 circles? ☐

4 Each group has 2 squares and 3 circles. Complete the table.

GROUPS	1	2	3	4	5
Squares	2	4	☐	☐	☐
Circles	3	☐	9	☐	☐



= 1 group

INTRODUCING RATIO

SUPPORT

NAME _____ CLASS _____ DATE _____

KEY IDEA

For every 2 squares, there are 3 circles.

The ratio of squares to circles is 2 : 3

Order matters: circles to squares is 3 : 2.



1 Write each ratio.





a) squares : circles = ☐ : ☐

b) circles : squares = ☐ : ☐

c) stars : triangles : circles = ☐ : ☐ : ☐

2 This bar model shows the paint mixed to make pink paint.



a) red : white = ☐ : ☐

b) white : red = ☐ : ☐

3 Here are 4 triangles and 8 circles.



a) triangles : circles = 4 : ☐

b) Another equal ratio: ☐ : ☐

c) For every 1 triangle, there are ☐ circles. So the ratio is 1 : ☐

4 Draw squares and circles to show each ratio.

squares : circles = 1 : 4

squares : circles = 3 : 2

INTRODUCING RATIO

CORE

NAME _____ CLASS _____ DATE _____

KEY IDEA

A ratio compares the sizes of parts, e.g. 2 : 3 means for every 2 of the first there are 3 of the second. Order matters. Multiply or divide every part by the same number to get an equivalent ratio: 2 : 3 = 4 : 6 = 10 : 15. Adding the same amount does not keep the ratio the same.

FLUENCY

1 Write each ratio.



a) circles : squares = ☐ : ☐

b) squares : triangles = ☐ : ☐

c) triangles : circles : squares = ☐ : ☐ : ☐

2 In a choir, for every 3 boys there are 4 girls.

a) boys : girls = ☐ : ☐

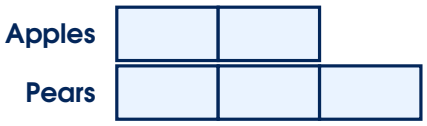
b) girls : boys = ☐ : ☐

c) Complete the table.

Boys	3	6	9	☐
Girls	4	☐	☐	20

REASONING

3 Amir says, "This bar model shows that the ratio of apples to pears is 2 : 5."



Explain Amir's mistake. What is the correct ratio?

4 Ella says, "3 : 5 and 6 : 8 are equivalent ratios, because I added 3 to both numbers." Is Ella correct? Convince me.

INTRODUCING RATIO

GREATER DEPTH

NAME _____ CLASS _____ DATE _____

REASONING

1 Is each statement always, sometimes or never true? Circle your answer.

If it is sometimes true, give an example of when it is true and when it is not.

a) Doubling both parts gives an equivalent ratio. ALWAYS SOMETIMES NEVER

b) The ratio a : b is the same as b : a. ALWAYS SOMETIMES NEVER

c) Adding 1 to both parts gives an equivalent ratio. ALWAYS SOMETIMES NEVER

d) The first number in a ratio is the smaller one. ALWAYS SOMETIMES NEVER

PROBLEM SOLVING

2 A bag has red, green and blue beads in the ratio 2 : 3 : 5. If there are 12 green beads, how many:

a) Red beads? ☐ **b)** Blue beads? ☐ **c)** Total number of beads? ☐

3 Jo has three times as many stickers as Ben.

a) Write the ratio of Jo's stickers to Ben's stickers. ☐ : ☐

b) Ben has 7 stickers. How many stickers does Jo have? ☐

c) Another day they have 48 stickers altogether. How many does Ben have? ☐

★ CHALLENGE FOR ALL

4 A necklace repeats this pattern: 2 gold beads, 3 silver beads, 1 pearl.

●●★★★▲ ●●★★★▲ ● = gold ★ = silver ▲ = pearl

a) gold : silver : pearl = ☐ : ☐ : ☐

b) A necklace has 45 silver beads. How many beads are there in total? ☐

c) Can a necklace of full repeats have exactly 50 beads? YES NO

Explain: _____

STEP 1 ANSWERS – INTRODUCING RATIO

ANSWERS

BUILDING BLOCKS

1 a) 1 square · b) 3 circles · c) For every 1 square, there are 3 circles.
2 a) For every 1 star, there are 2 triangles. · b) For every 3 triangles, there is 1 square.
3 Drawings: 2, 4 and 6 squares. · a) 6 squares · b) 10 squares
4 Squares: 2, 4, 6, 8, 10 · Circles: 3, 6, 9, 12, 15

SUPPORT

1 a) 5 : 2 · b) 2 : 5 · c) 3 : 1 : 2
2 a) red : white = 2 : 5 · b) white : red = 5 : 2
3 a) 4 : 8 · b) 2 circles; 1 : 2 · c) any equivalent ratio, e.g. 2 : 4, 3 : 6, 8 : 16
4 1 : 4, e.g. 1 square and 4 circles (or 2 and 8). 3 : 2, e.g. 3 squares and 2 circles (or 6 and 4).

CORE

1 a) 2 : 3 · b) 3 : 1 · c) 1 : 2 : 3
2 a) 3 : 4 · b) 4 : 3 · c) Girls 8, 12 · Boys 15
3 Amir has used the total number of parts (5) instead of the number of pears (3). The correct ratio is 2 : 3.
4 No. Equivalent ratios multiply (or divide) both parts by the same number: 3 : 5 = 6 : 10. 6 : 8 is equivalent to 3 : 4, not 3 : 5.

GREATER DEPTH

1 a) Always · b) Sometimes – only when a = b, e.g. 2 : 2 · c) Sometimes – true for 1 : 1 → 2 : 2, false for 1 : 2 → 2 : 3 · d) Sometimes – true for 2 : 5, false for 5 : 2
2 a) 8 red · b) 20 blue · c) 40 beads
3 a) 3 : 1 · b) 21 stickers · c) Ben has 12 (Jo has 36)
4 a) 2 : 3 : 1 · b) 90 beads (15 repeats of 6) · c) No – each repeat has 6 beads and 50 is not a multiple of 6.