DIVIDING by 3
WORK BOOKLET

TRIANGLE FACT FAMILY

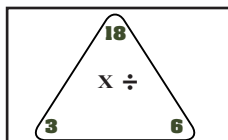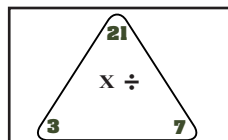| 12 |
|----|
| x ÷ |
| 3   4 |

x ___ = ___
x ___ = ___
÷ ___ = ___
÷ ___ = ___

15
x ÷
3   5

x ___ = ___
x ___ = ___
÷ ___ = ___
÷ ___ = ___

18
x ÷
3   6

x ___ = ___
x ___ = ___
÷ ___ = ___
÷ ___ = ___

21
x ÷
3   7

x ___ = ___
x ___ = ___
÷ ___ = ___
÷ ___ = ___

DIVISION WHEELS

÷3

Outer: 1 2 3 4 5 6 7 8 9 10 11 12
Inner: 3 6 9 12 15 18 21 24 27 30 33 36

MULTIPLES OF 3

3 6 9 12 15 18 21 24 27 30 33 36

3

Division Strategies: PARTITION

12
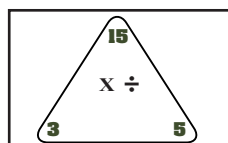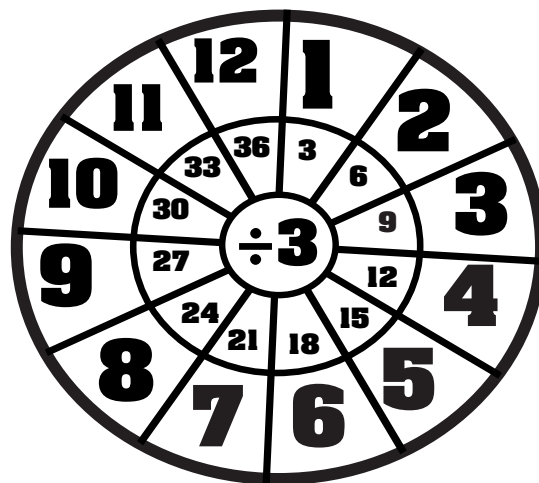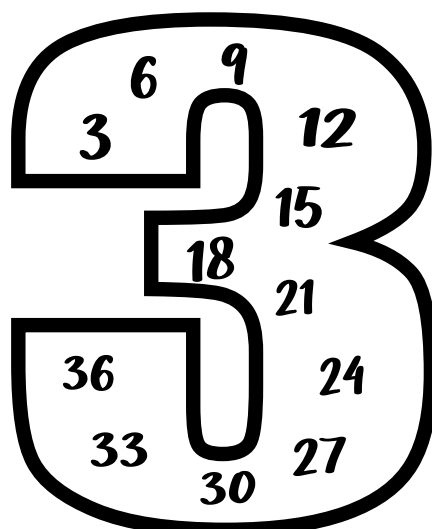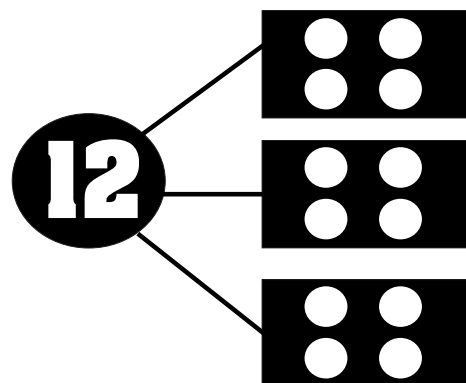
$$12 \div 3 = 4$$

STRATEGY POSTER
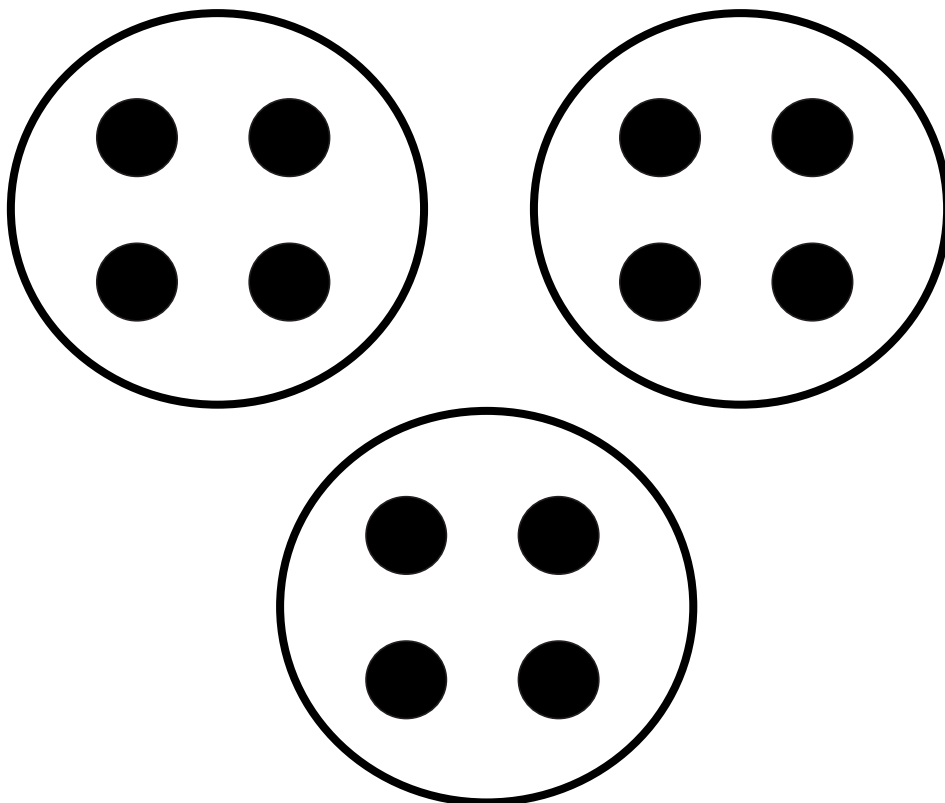
When dividing by 3, think multiplication! 3 x ? =

$$12 \div 3 = 4$$

Hint: When dividing by 3. Think multiplication 3 x ? = 12

DIVISION

$$15 \div 3 = 5$$

↓   ↓   ↓

DIVIDEND   DIVISOR   QUOTIENT

MULTIPLES OF THREE

3

6

9

12

15

18

21

24

27

30

33

36

MULTIPLES OF THREE

3   6   9

12   15   18

21   24   27

30   33   36

MULTIPLES OF 3
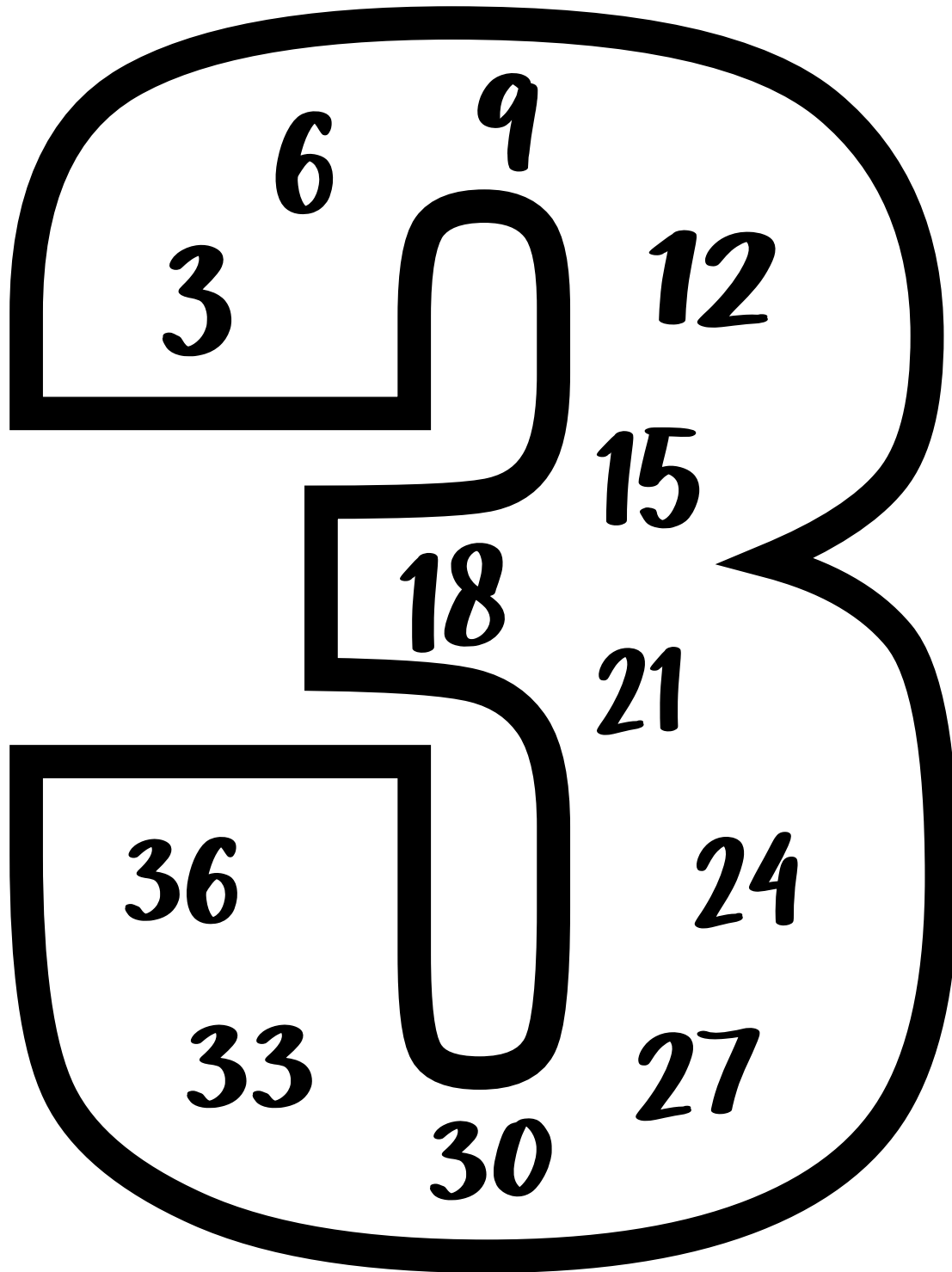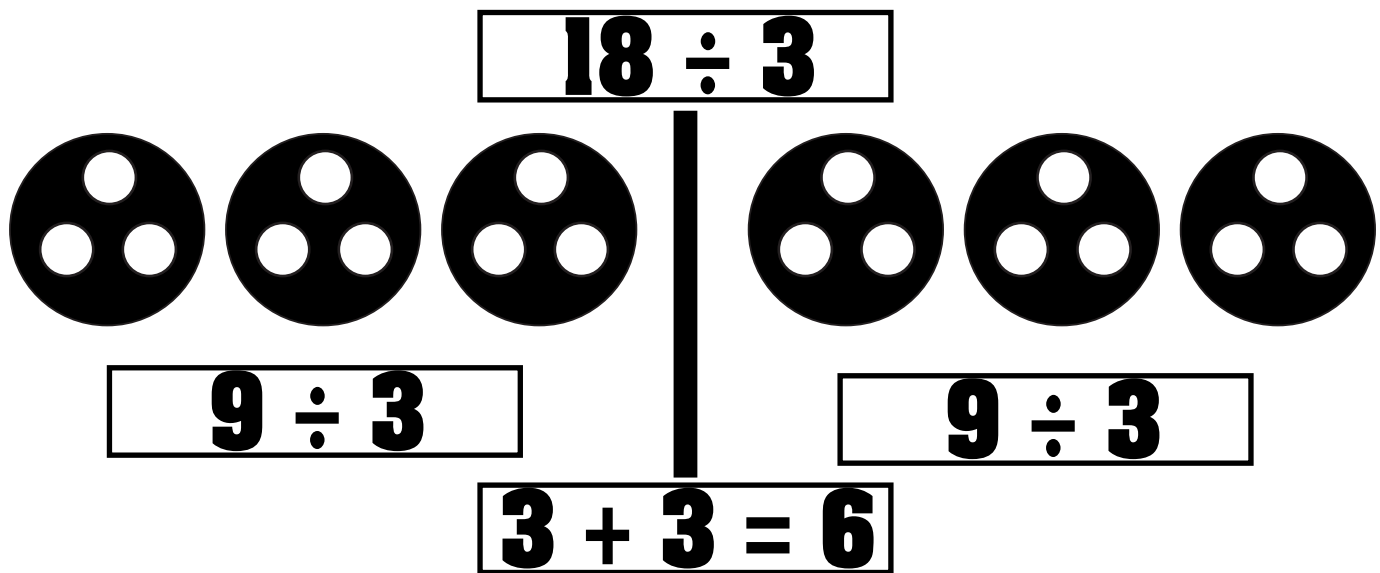
3 6 9 12 15 18 21 24 27 30 33 36

VOCABULARY

DISTRIBUTIVE PROPERTY

There were 18 marbles. I put 3 in each bag. How many bags did I use?

$$18 \div 3 = (9 \div 3) + (9 \div 3) = 3 + 3 = 6$$

18 ÷ 3

9 ÷ 3   9 ÷ 3

3 + 3 = 6

MODEL THE FACT

There were 12 marbles. I put 3 in each bag. How many bags did I use?

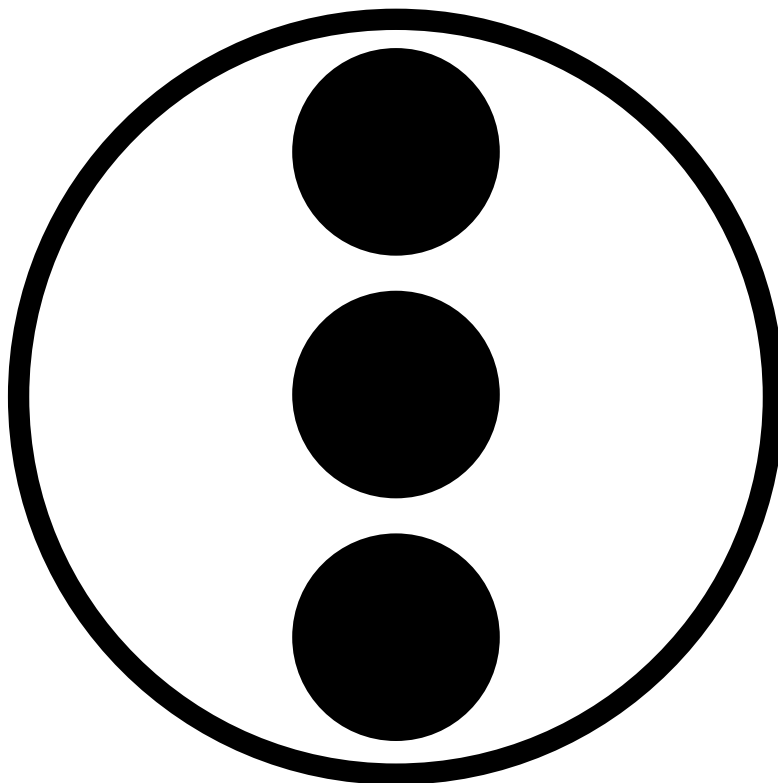$$12 \div 3 = (6 \div 3) + (6 \div 3)$$

IDENTITY PROPERTY

DIVIDING A NUMBER BY 1

$$3 \div 1 = 3$$

$$10 \div 1 \qquad 5 \div 1 \qquad 7 \div 1$$

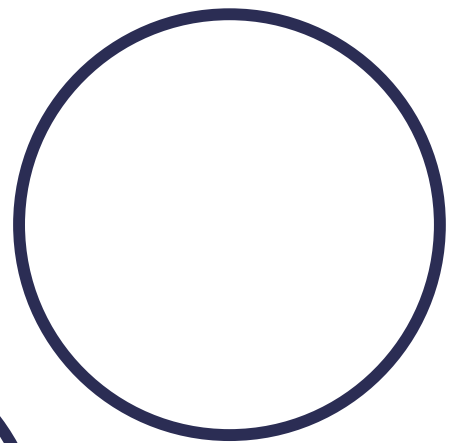**Hint : It's always the number when you divide by 1.**
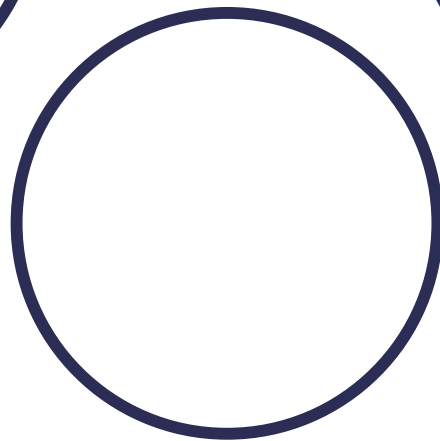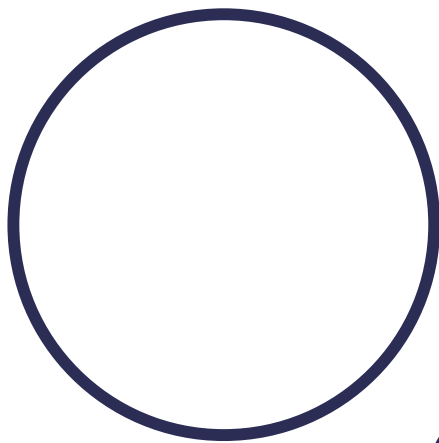
ZERO PROPERTY

DIVIDING 0 BY A NUMBER

$$0 \div 3 = 0$$

$$0 \div 8 \qquad 0 \div 1 \qquad 0 \div 2$$

Hint: It's always 0 when you divide zero by a number.
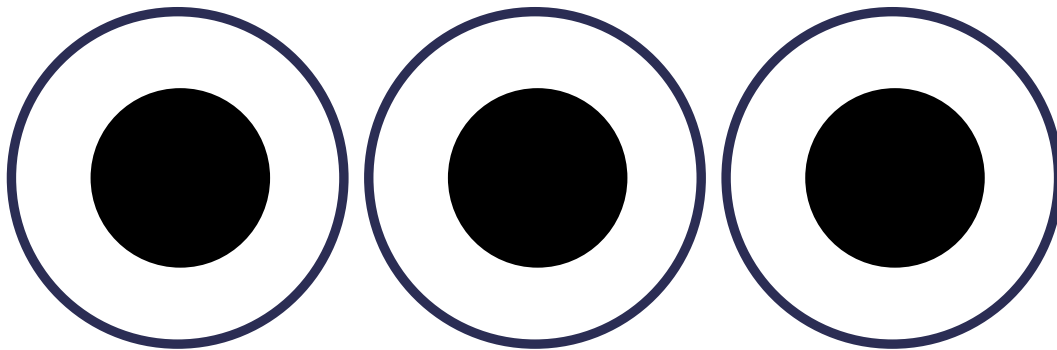
DIVISION BY ITSELF PROPERTY

DIVIDING A NUMBER BY ITSELF

$$3 \div 3 = 1$$
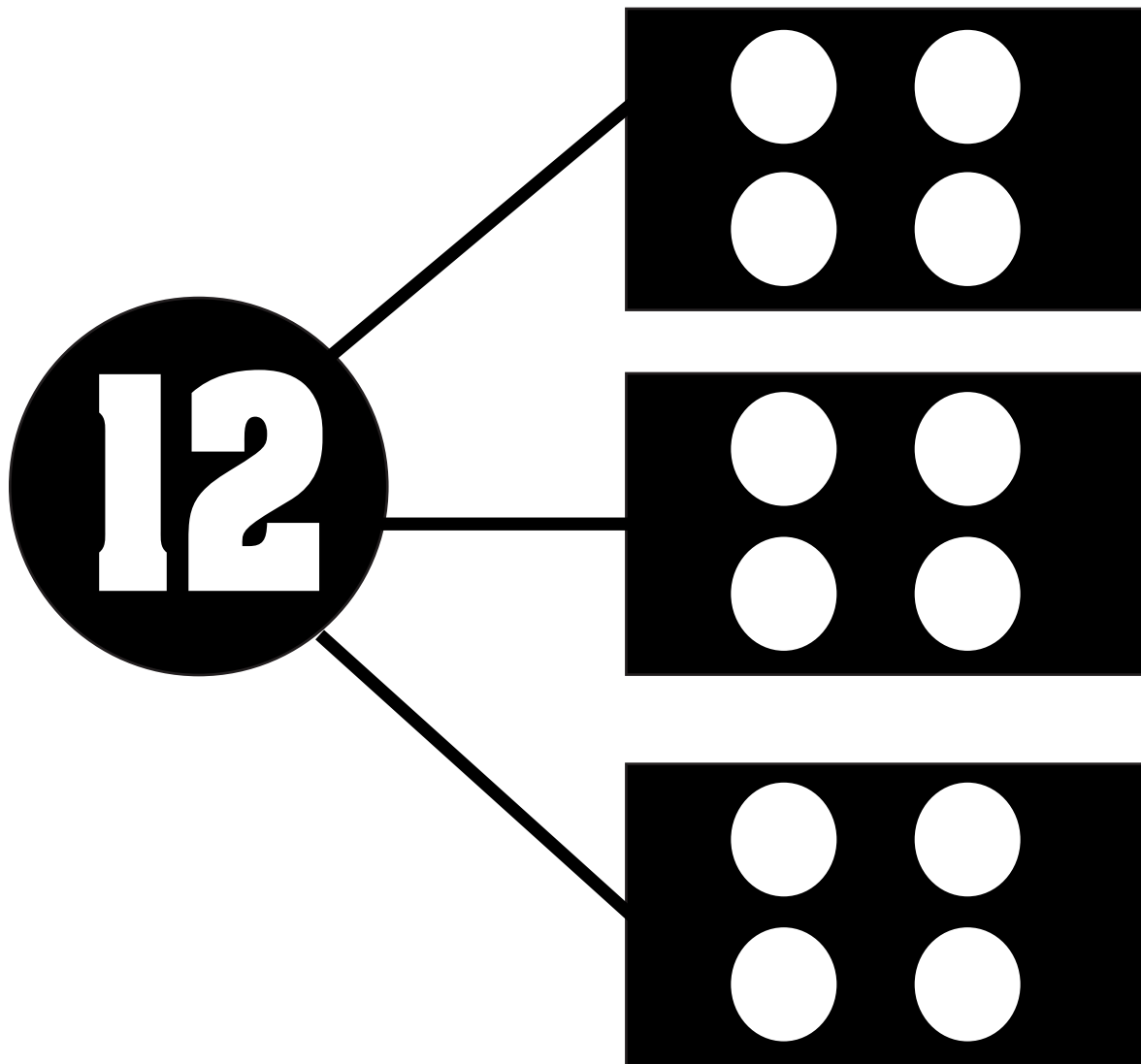
$$10 \div 10 \qquad 5 \div 5 \qquad 8 \div 8$$

Hint : It's always 1 when you divide a number by itself.

Division Strategies:
PARTITION

$$12 \div 3 = 4$$

Division Strategies:
PARTITION

3 ÷ 3 = 1

6 ÷ 3 = 2

9 ÷ 3 = 3

Division Strategies:

PARTITION

$12 \div 3 = 4$

$15 \div 3 = 5$

$18 \div 3 = 6$

Division Strategies:
PARTITION

$$21 \div 3 = 7$$

$$24 \div 3 = 8$$

$$27 \div 3 = 9$$

Division Strategies:
PARTITION

30 ÷ 3 = 10

FREE CHOICE

FREE CHOICE

Division Strategies:
RELATED FACT

$21 ÷ 3 =$ __

think

$3 × $ __ $ = 21$

$3 ÷ 3 =$ __

think

$3 × $ __ $ = 3$

$15 ÷ 3 =$ __

think

$3 × $ __ $ = 15$

$27 ÷ 3 =$ __

think

$3 × $ __ $ = 27$

Division Strategies:
RELATED FACT

$9 \div 3 =$ ___

think

$3 \times$ ___ $= 9$

$30 \div 3 =$ ___

think

$3 \times$ ___ $= 30$

$6 \div 3 =$ ___

think

$3 \times$ ___ $= 6$

$18 \div 3 =$ ___

think

$3 \times$ ___ $= 18$

Division Strategies:
RELATED FACT

12 ÷ 3 = __

think

3 x __ = 12

---

24 ÷ 3 = __

think

3 x __ = 24

__ ÷ __ = __

think

__ x __ = __

__ ÷ __ = __

think

__ x __ = __

Division Strategies:
REPEATED SUBTRACTION

$$18 \div 3 = ?$$

$$18 - 3 = 15$$

$$15 - 3 = 12$$

$$12 - 3 = 9$$

$$9 - 3 = 6$$

$$6 - 3 = 3$$

$$3 - 3 = 0$$

$$18 \div 3 = \boxed{6}$$

Division Strategies:
REPEATED SUBTRACTION

$$18 \div 3 = \ ?$$

$$18 - \underline{} = 15$$
$$\underline{} - 3 = 12$$
$$\underline{} - 3 = 9$$
$$9 - \underline{} = 6$$
$$6 - \underline{} = 3$$
$$\underline{} - 3 = 0$$

$$18 \div 3 = \boxed{}$$

Division Strategies:
REPEATED SUBTRACTION

$$21 \div 3 = ?$$

$$21 - \underline{} = 18$$
$$18 - \underline{} = 15$$
$$\underline{} - 3 = 12$$
$$\underline{} - 3 = 9$$
$$9 - \underline{} = 6$$
$$6 - \underline{} = 3$$
$$\underline{} - 3 = 0$$

$$21 \div 3 = \boxed{}$$

Division Strategies:
REPEATED SUBTRACTION
$15 \div 3 = ?$

$$\underline{} - 3 = 12$$

$$\underline{} - 3 = 9$$

$$9 - \underline{} = 6$$

$$6 - \underline{} = 3$$

$$\underline{} - 3 = 0$$

$$15 \div 3 = \boxed{}$$

Division Strategies:
REPEATED SUBTRACTION

$$24 \div 3 = \text{?}$$

$$24 - \underline{} = 21$$

$$21 - \underline{} = 18$$

$$18 - \underline{} = 15$$

$$\underline{} - 3 = 12$$

$$\underline{} - 3 = 9$$

$$9 - \underline{} = 6$$

$$6 - \underline{} = 3$$

$$\underline{} - 3 = 0$$

$$24 \div 3 = \boxed{}$$

Division Strategies:
REPEATED SUBTRACTION

$$30 \div 3 = ?$$

$$30 - \underline{} = 27$$

$$27 - \underline{} = 24$$

$$24 - \underline{} = 21$$

$$21 - \underline{} = 18$$

$$18 - \underline{} = 15$$

$$\underline{} - 3 = 12$$

$$\underline{} - 3 = 9$$

$$9 - \underline{} = 6$$

$$\underline{} - 3 = 3$$

$$\underline{} - 3 = 0$$

$$30 \div 3 = \boxed{}$$

Modeling Division
SKIP COUNTING

DRAW ON A NUMBER LINE

3 6 9 12 15 18 21 24 27 30

3 ☐ 9 ☐ ☐ 18 21 24 ☐ 30

FILL IN THE MISSING NUMBERS

3		9		15		21			30

		9		15		21			30

Modeling Division
SKIP COUNTING

FILL IN THE MISSING NUMBERS

3	9			21		30

FILL IN THE MISSING NUMBERS

	6	12		21	27	

FILL IN THE MISSING NUMBERS

	6	12			24	30

FILL IN THE MISSING NUMBERS

3	9	15	21	27	

Division Strategies:
SKIP COUNTING

MODEL 3 ÷ 3 ON THE NUMBER LINE.

0 ☐ 6 9 12 15 18 21 24 27 30
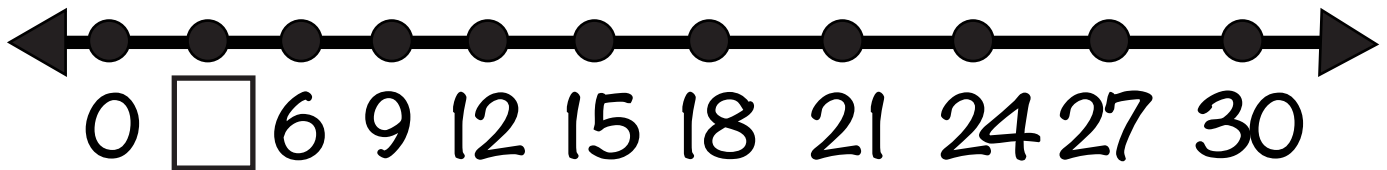
MODEL 6 ÷ 3 ON THE NUMBER LINE.

0 ☐ ☐ 9 12 15 18 21 24 27 30
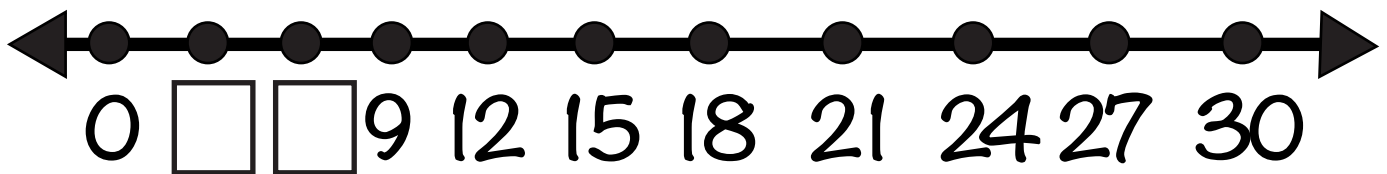
MODEL 9 ÷ 3 ON THE NUMBER LINE.

0 ☐ ☐ ☐ 12 15 18 21 24 27 30
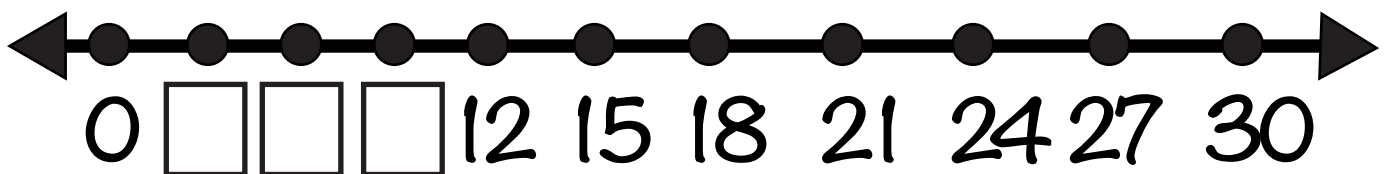
Division Strategies: SKIP COUNTING

MODEL 12 ÷ 3 ON THE NUMBER LINE.

0 ☐ ☐ ☐ ☐ 15 18 21 24 27 30
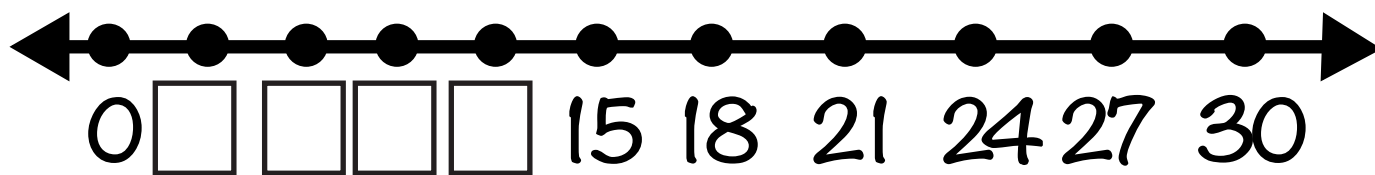
MODEL 15 ÷ 3 ON THE NUMBER LINE.

0 ☐ ☐ ☐ ☐ ☐ 18 21 24 27 30
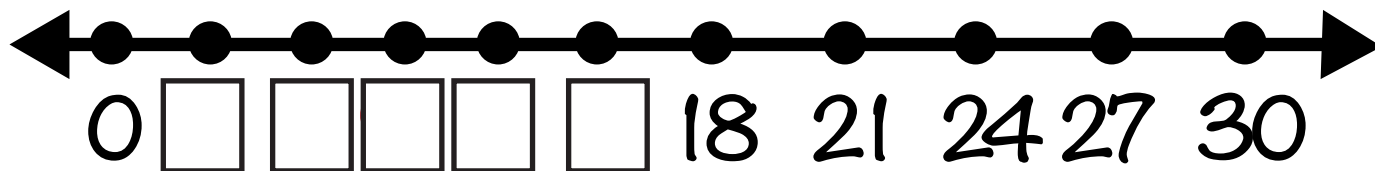
MODEL 18 ÷ 3 ON THE NUMBER LINE.

0 ☐ ☐ ☐ ☐ ☐ ☐ 21 24 27 30
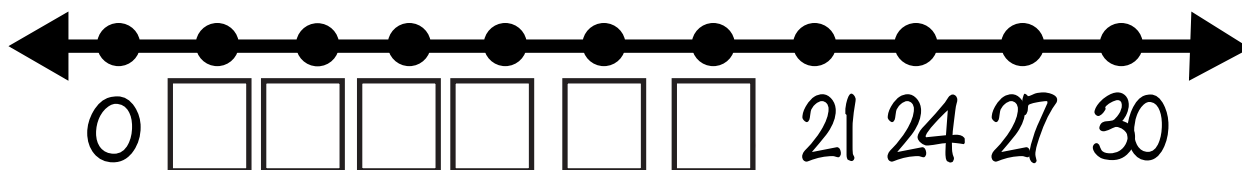
MODEL 21 ÷ 3 ON THE NUMBER LINE.

0 ☐ ☐ ☐ ☐ ☐ ☐ ☐ 24 27 30
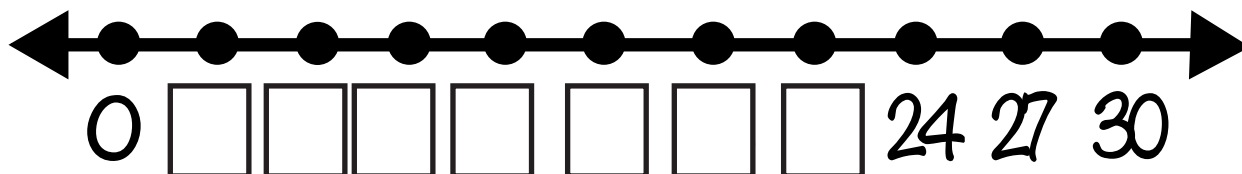
Division Strategies:
SKIP COUNTING

MODEL 24 ÷ 3 ON THE NUMBER LINE.

0 ☐ ☐ ☐ ☐ ☐ ☐ ☐ 27 30
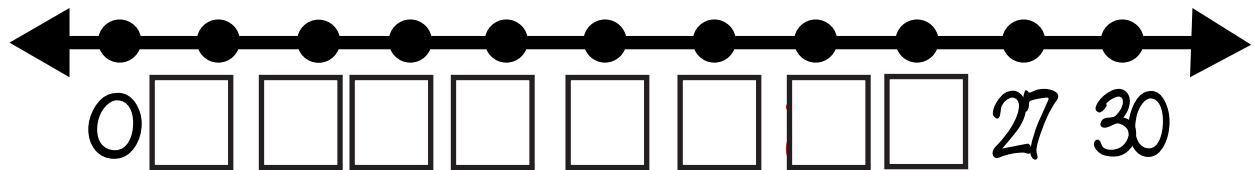
MODEL 27 ÷ 3 ON THE NUMBER LINE.

0 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ 30
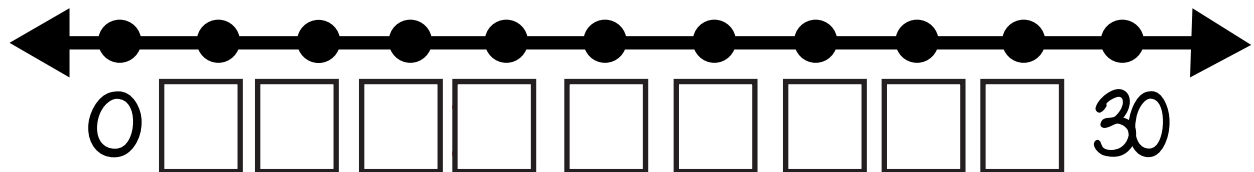
MODEL 30 ÷ 3 ON THE NUMBER LINE.

0 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
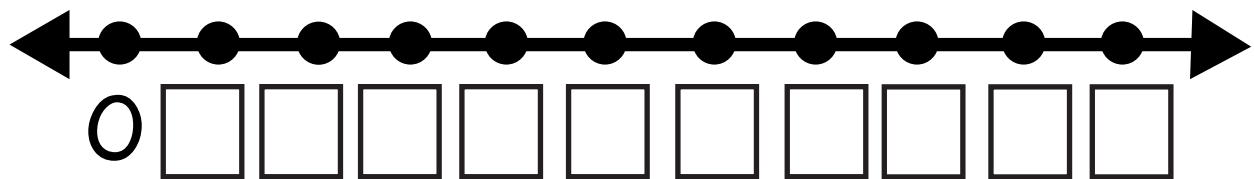
Division Strategies:
NUMBER LINES

THERE ARE 12 COOKIES AND YOU PUT 3 IN A BAG. HOW MANY BAGS DO YOU HAVE?

12 ÷ 3 = 4

```
    -3      -3      -3      -3
  0 1 2 3 4 5 6 7 8 9 10 11 12
```
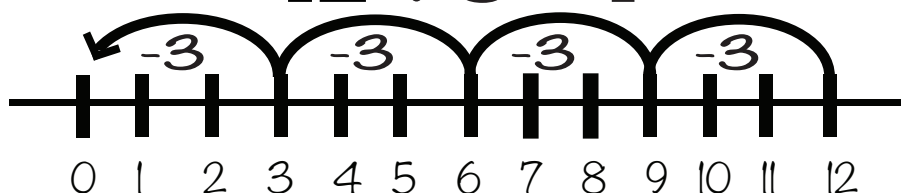
HOW MANY JUMPS UNTIL YOU GET TO ZERO?

THE FIRST NUMBER IS HOW MANY COOKIES? (DIVIDEND). THE SECOND NUMBER IS HOW MANY ARE IN A BAG (DIVISOR). THE QUESTION IS HOW MANY BAGS DO YOU NEED (QUOTIENT)?

SOLVE THE PROBLEM ON THE NUMBER LINE.
HOW MANY JUMPS UNTIL YOU GET TO ZERO?

3 ÷ 3

```
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
```

6 ÷ 3

```
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
```

9 ÷ 3

```
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
```

12 ÷ 3

```
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
```

Division Strategies:
NUMBER LINES

15 ÷ 3

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

18 ÷ 3

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

21 ÷ 3

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

24 ÷ 3

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

27 ÷ 3

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

30 ÷ 3

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

Division Strategies:
SKIP COUNTING CHART

3	18
6	21
9	24
12	27
15	30

Division Vocabulary

dividend   **divisor**   quotient

$$15 \div 3 = 5$$

$$\begin{array}{r} 5 \\ 3{\overline{\smash{\big)}\,15}} \end{array}$$

quotient

divisor   **dividend**

dividend $\dfrac{15}{3} = 5$ quotient

divisor

Array Flashcards

USE THE MODEL TO SOLVE

$$3 \div 3 = \underline{}$$
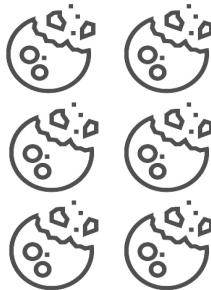
$$6 \div 3 = \underline{}$$

Array Flashcards

USE THE MODEL TO SOLVE
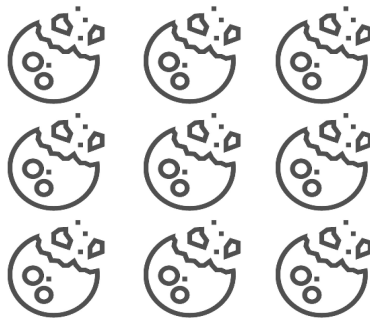
$$9 \div 3 = \underline{\quad}$$

$$12 \div 3 = \underline{\quad}$$

Array Flashcards
USE THE MODEL TO SOLVE
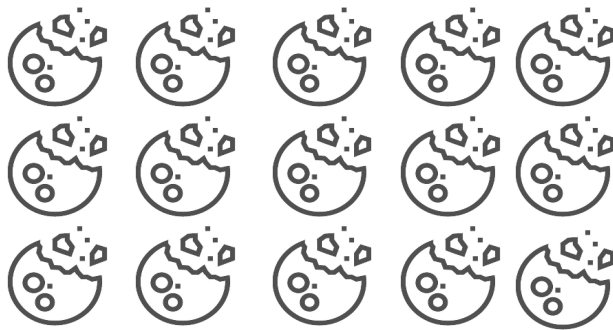
$$15 \div 3 = \underline{}$$
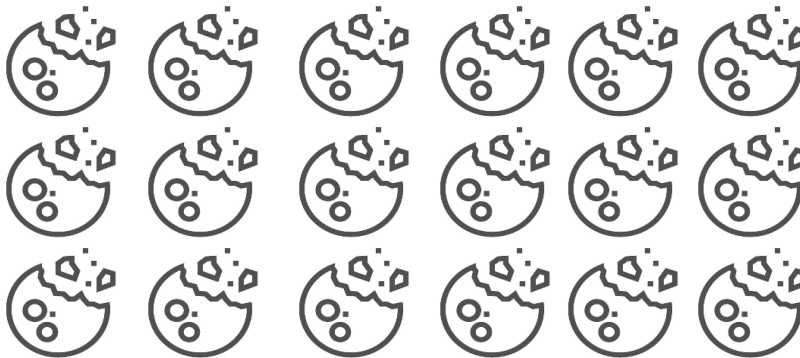
$$18 \div 3 = \underline{}$$

Array Flashcards

USE THE MODEL TO SOLVE

$$21 \div 3 = \underline{}$$

$$24 \div 3 = \underline{}$$

Array Flashcards

USE THE MODEL TO SOLVE
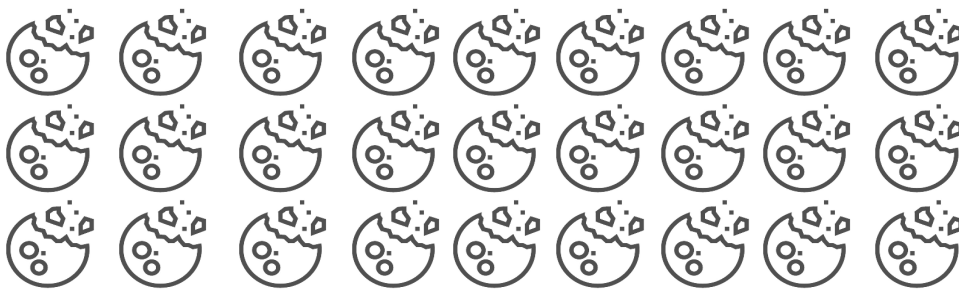
$$27 \div 3 = \underline{}$$
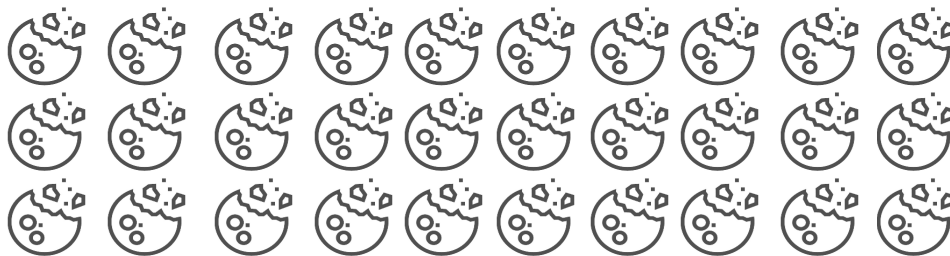
$$30 \div 3 = \underline{}$$

Array Flashcards

WRITE AN EQUATION THAT MATCHES THE ARRAY.

FREE CHOICE

FREE CHOICE

Equal Group Flashcards

MAKE YOUR OWN EQUAL GROUP FLASHCARDS. DRAW EQUAL GROUPS TO MODEL THE PROBLEM.

$3 \div 3 = \underline{\quad}$
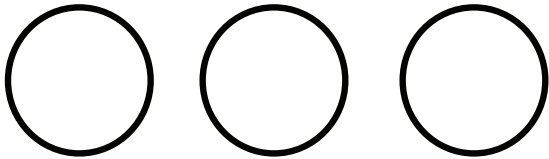
$6 \div 3 = \underline{\quad}$
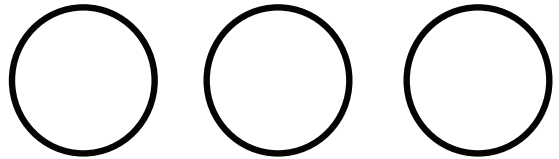
$9 \div 3 = \underline{\quad}$
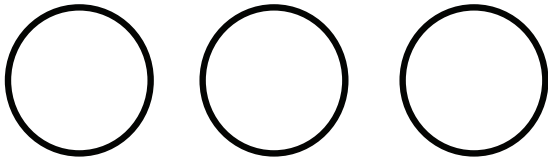
$12 \div 3 = \underline{\quad}$
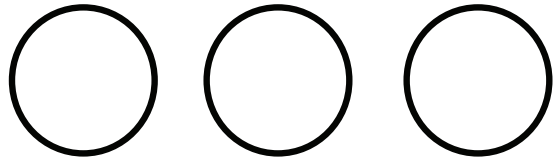
$15 \div 3 = \underline{\quad}$
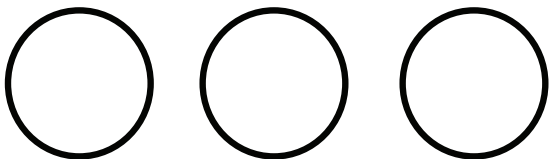
$18 \div 3 = \underline{\quad}$
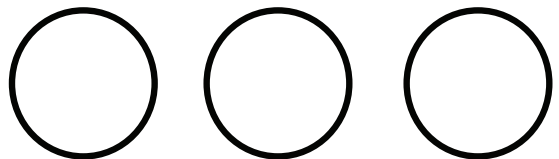
Equal Group Flashcards

MAKE YOUR OWN EQUAL GROUP FLASHCARDS. DRAW EQUAL GROUPS TO MODEL THE PROBLEM.

21 ÷ 3 = __

◯ ◯ ◯
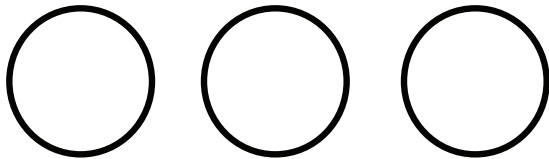
24 ÷ 3 =

◯ ◯ ◯
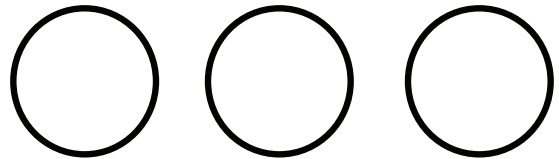
27 ÷ 3 = __

◯ ◯ ◯
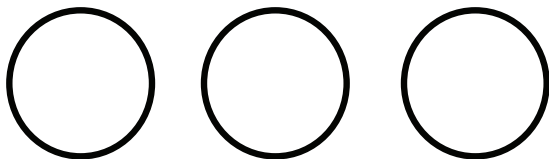
30 ÷ 3 = __

◯ ◯ ◯
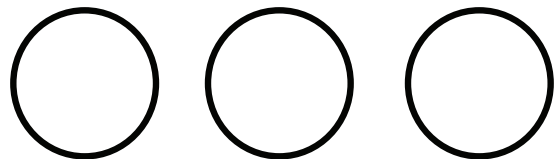
Regular Flashcards
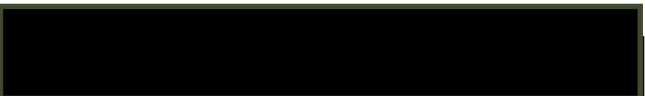
$0 \div 3$	$3 \div 3$
$6 \div 3$	$9 \div 3$
$12 \div 3$	$15 \div 3$

Regular Flashcards

$18 \div 3$	$21 \div 3$
$24 \div 3$	$27 \div 3$

$30 \div 3$

Dividing by 3 Calling Cards

0	1	2	3	4
5	6	7	8	9
		10		

Dividing by 3
4 IN A ROW

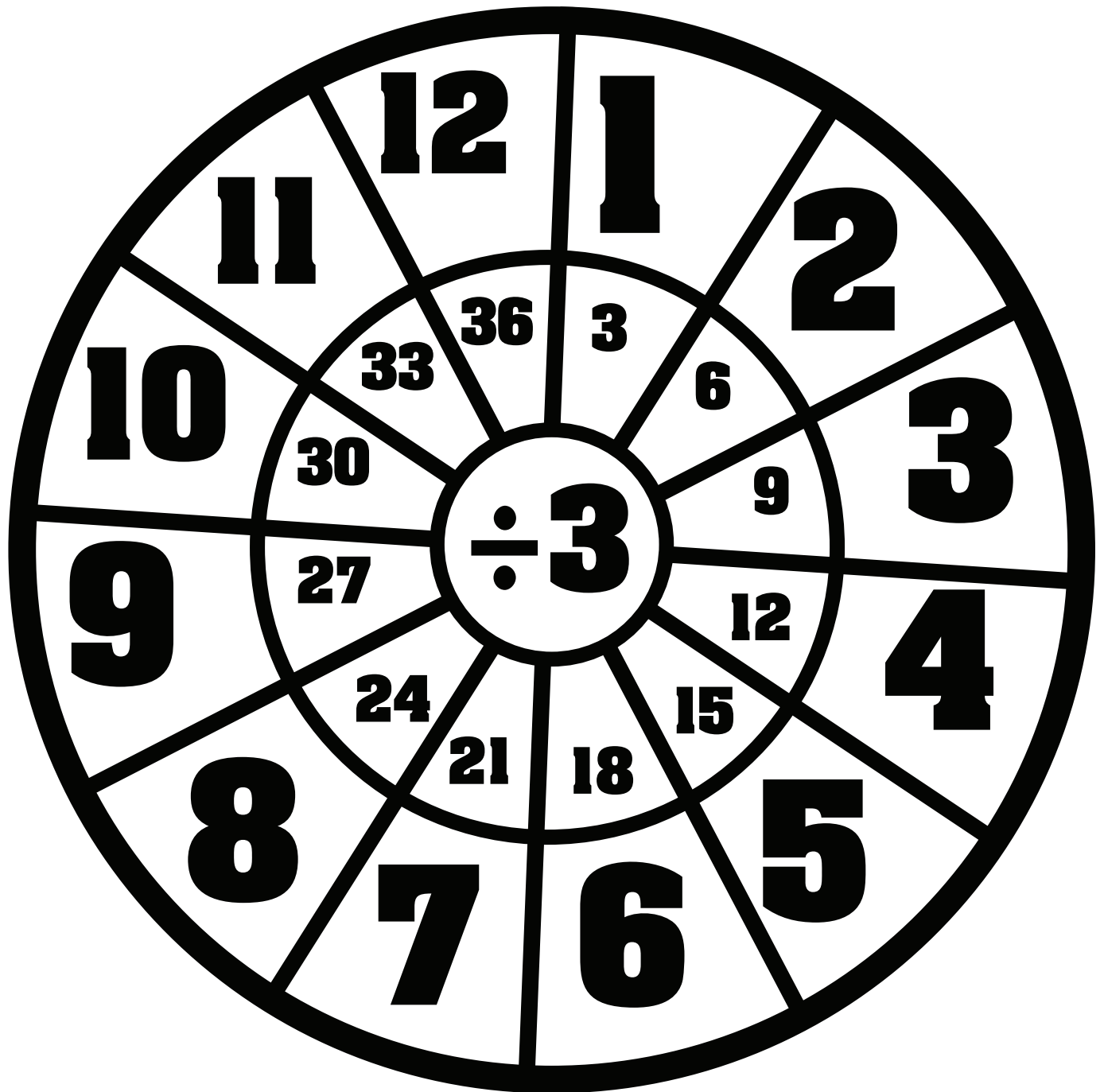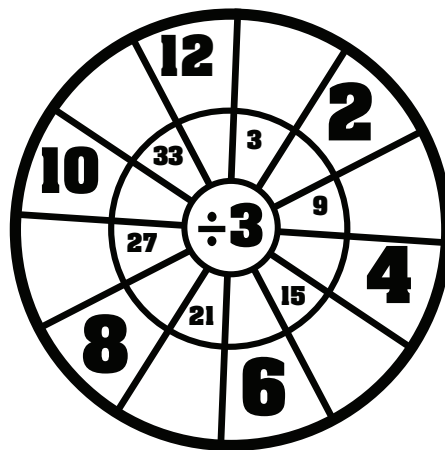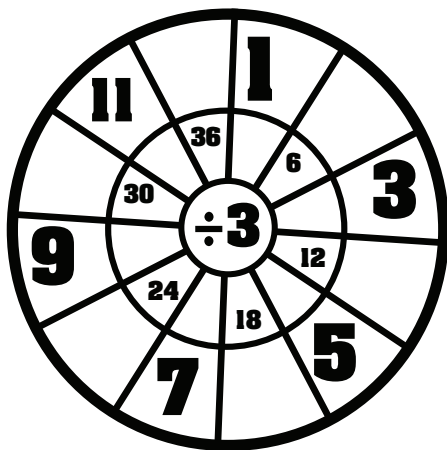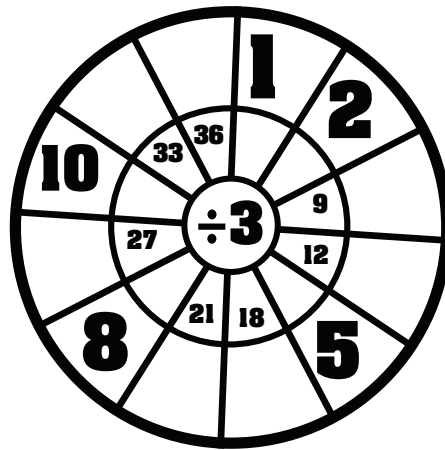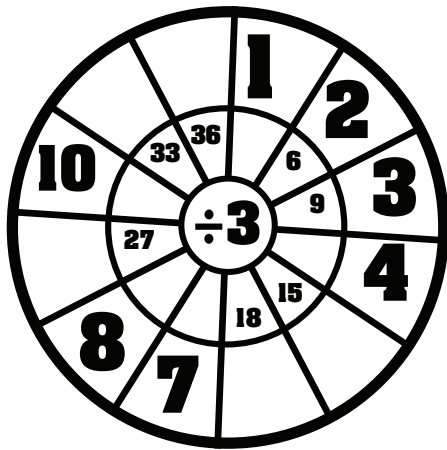|					
$27 \div 3 = ?$	$6 \div 3 = ?$	$30 \div 3 = ?$	$15 \div 3 = ?$	$0 \div 3 = ?$	$15 \div 3 = ?$
$18 \div 3 = ?$	$21 \div 3 = ?$	$24 \div 3 = ?$	$27 \div 3 = ?$	$30 \div 3 = ?$	$9 + 3 = ?$
$9 \div 3 = ?$	$3 \div 3 = ?$	$18 \div 3 = ?$	$12 \div 3 = ?$	$6 \div 3 = ?$	$15 \div 3 = ?$
$0 \div 3 = ?$	$21 + 3 = ?$	$3 \div 3 = ?$	$9 \div 3 = ?$	$24 \div 3 = ?$	$12 \div 3 = ?$
$30 \div 3 = ?$	$0 \div 3 = ?$	$21 + 3 = ?$	$6 \div 3 = ?$	$15 \div 3 = ?$	$24 \div 3 = ?$
$9 \div 3 = ?$	$21 \div 3 = ?$	$18 \div 3 = ?$	$0 \div 3 = ?$	$6 \div 3 = ?$	$30 \div 3 = ?$
$12 \div 3 = ?$	$15 \div 3 = ?$	$30 \div 3 = ?$	$24 \div 3 = ?$	$21 \div 3 = ?$	$27 \div 3 = ?$

Instructions:

1. Each person pulls a card. Whoever has the largest number starts.
2. Take turns pulling a card and cover the expression that matches that quotient.
3. The first player to get 4 in a row wins!
4. Play again!

DIVISION WHEELS

DIVISION WHEELS

PICTURE FACT FAMILY

___ x ___ = ___

___ x ___ = ___

___ ÷ ___ = ___

___ ÷ ___ = ___

___ x ___ = ___

___ x ___ = ___

___ ÷ ___ = ___

___ ÷ ___ = ___

___ x ___ = ___

___ x ___ = ___

___ ÷ ___ = ___

___ ÷ ___ = ___

___ x ___ = ___

___ x ___ = ___

___ ÷ ___ = ___

___ ÷ ___ = ___

PICTURE FACT FAMILY

_____ X _____ = _____

_____ X _____ = _____

_____ ÷ _____ = _____

_____ ÷ _____ = _____

_____ X _____ = _____

_____ X _____ = _____

_____ ÷ _____ = _____

_____ ÷ _____ = _____

_____ X _____ = _____

_____ X _____ = _____

_____ ÷ _____ = _____

_____ ÷ _____ = _____

_____ X _____ = _____

_____ X _____ = _____

_____ ÷ _____ = _____

_____ ÷ _____ = _____

PICTURE FACT FAMILY

___ × ___ = ___

___ × ___ = ___

___ ÷ ___ = ___

___ ÷ ___ = ___

MAKE YOUR OWN

___ × ___ = ___

___ × ___ = ___

___ ÷ ___ = ___

___ ÷ ___ = ___

TRIANGLE FACT FAMILY

Card 1

X ÷

___ X ___ = ___
___ X ___ = ___
___ ÷ ___ = ___
___ ÷ ___ = ___

Card 2

3

X ÷

3   1

___ X ___ = ___
___ X ___ = ___
___ ÷ ___ = ___
___ ÷ ___ = ___

Card 3

6

X ÷

3   2

___ X ___ = ___
___ X ___ = ___
___ ÷ ___ = ___
___ ÷ ___ = ___

Card 4

9

X ÷

3   3

___ X ___ = ___
___ X ___ = ___
___ ÷ ___ = ___
___ ÷ ___ = ___

TRIANGLE FACT FAMILY

Card 1

```
        12
      X ÷
    3       4
```

_____ X _____ = _____

_____ X _____ = _____

_____ ÷ _____ = _____

_____ ÷ _____ = _____

Card 2

```
        15
      X ÷
    3       5
```

_____ X _____ = _____

_____ X _____ = _____

_____ ÷ _____ = _____

_____ ÷ _____ = _____

Card 3

```
        18
      X ÷
    3       6
```

_____ X _____ = _____

_____ X _____ = _____

_____ ÷ _____ = _____

_____ ÷ _____ = _____

Card 4

```
        21
      X ÷
    3       7
```

_____ X _____ = _____

_____ X _____ = _____

_____ ÷ _____ = _____

_____ ÷ _____ = _____

TRIANGLE FACT FAMILY

24

X ÷

3   **8**

___ X ___ = ___

___ X ___ = ___

___ ÷ ___ = ___

___ ÷ ___ = ___

27

X ÷

3   **9**

___ X ___ = ___

___ X ___ = ___

___ ÷ ___ = ___

___ ÷ ___ = ___

30

X ÷

3   **10**
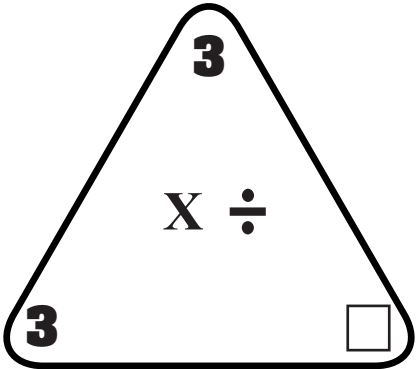
___ X ___ = ___

___ X ___ = ___

___ ÷ ___ = ___

___ ÷ ___ = ___

TRIANGLE FACT FAMILY

Box 1 (top left):

Triangle: top = 3, bottom left = 3, bottom right = □

Center: X ÷

___ X ___ = ___

___ X ___ = ___

___ ÷ ___ = ___

___ ÷ ___ = ___

Box 2 (top right):

Triangle: top = □, bottom left = 3, bottom right = 5

Center: X ÷

___ X ___ = ___

___ X ___ = ___

___ ÷ ___ = ___

___ ÷ ___ = ___

Box 3 (bottom left):

Triangle: top = □, bottom left = 3, bottom right = 6

Center: X ÷

___ X ___ = ___

___ X ___ = ___

___ ÷ ___ = ___

___ ÷ ___ = ___

Box 4 (bottom right):

Triangle: top = 30, bottom left = 3, bottom right = □

Center: X ÷

___ X ___ = ___

___ X ___ = ___

___ ÷ ___ = ___

___ ÷ ___ = ___

TRIANGLE FACT FAMILY

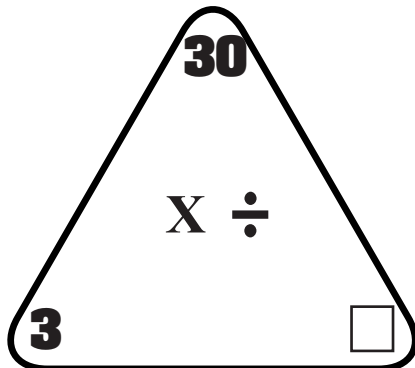Triangle 1 (top left): □ at top, 3 at bottom left, 6 at bottom right, center shows X ÷

___ X ___ = ___
___ X ___ = ___
___ ÷ ___ = ___
___ ÷ ___ = ___

Triangle 2 (top right): 9 at top, 3 at bottom left, □ at bottom right, center shows X ÷

___ X ___ = ___
___ X ___ = ___
___ ÷ ___ = ___
___ ÷ ___ = ___

Triangle 3 (bottom left): □ at top, 3 at bottom left, 4 at bottom right, center shows X ÷

___ X ___ = ___
___ X ___ = ___
___ ÷ ___ = ___
___ ÷ ___ = ___

WORD PROBLEM

MODEL YOUR THINKING AND SOLVE THE PROBLEM.

THE BAKERY HAD 12 DONUTS IN 3 ROWS. THEY HAD THE SAME AMOUNT IN EACH ROW. HOW MANY WERE IN EACH ROW?

_____ ÷ _____ = _____

THE BAKERY HAD 15 DONUTS. THEY PUT 3 IN A ROW. HOW MANY ROWS DID THEY MAKE?

_____ ÷ _____ = _____

THE BAKERY MADE 30 MUFFINS. THEY PACKED 3 IN A BOX. HOW MANY BOXES DID THEY USE?

_____ ÷ _____ = _____

THE BAKERY MADE 9 HAND PIES. THEY USED 3 BOXES. THEY PUT THE SAME AMOUNT OF PIES IN EACH BOX. HOW MANY HAND PIES DID THEY PUT IN EACH BOX?

_____ ÷ _____ = _____

QUIZ

Follow the directions in each box. Choose an equation to represent each problem.

I CAN SKIP COUNT TO DIVIDE BY 3'S!	I CAN USE EQUAL GROUPS TO DIVIDE BY 3'S!

I CAN USE ARRAYS TO MODEL DIVIDING BY 3'S!	I CAN MODEL DIVIDING BY 3'S ON THE NUMBER LINE!

I CAN USE REPEATED SUBTRACTION TO DIVIDE BY 3'S.	MY STRATEGY FOR THINKING ABOUT DIVIDING BY 3'S IS….

CERTIFICATE

★ GREAT MATH WORK! ★

HAS SUCCESSFULLY PRACTICED DIVIDING BY 3'S!

GREAT JOB!

TEACHER: _____

DATE: _____

Looking at the 3's

3 ÷ 3 = 1	18 ÷ 3 = 6
6 ÷ 3 = 2	21 ÷ 3 = 7
9 ÷ 3 = 3	24 ÷ 3 = 8
12 ÷ 3 = 4	27 ÷ 3 = 9
15 ÷ 3 = 5	30 ÷ 3 = 10

Bookmarks

Bookmark 1 (white)

3
Division

3 ÷ 3 = 1
6 ÷ 3 = 2
9 ÷ 3 = 3
12 ÷ 3 = 4
15 ÷ 3 = 5
18 ÷ 3 = 6
21 ÷ 3 = 7
24 ÷ 3 = 8
27 ÷ 3 = 9
30 ÷ 3 = 10

DIVIDING A NUMBER BY 3

Hint: Think Multiplication!
3 x ? = _

Bookmark 2 (green)

3
DIVISION

3 ÷ 3 = 1
6 ÷ 3 = 2
9 ÷ 3 = 3
12 ÷ 3 = 4
15 ÷ 3 = 5
18 ÷ 3 = 6
21 ÷ 3 = 7
24 ÷ 3 = 8
27 ÷ 3 = 9
30 ÷ 3 = 10

DIVIDING A NUMBER BY 3

Hint: Think Multiplication!
3 x ? = _

Bookmark 3 (navy)

3
DIVISION

3 ÷ 3 = 1
6 ÷ 3 = 2
9 ÷ 3 = 3
12 ÷ 3 = 4
15 ÷ 3 = 5
18 ÷ 3 = 6
21 ÷ 3 = 7
24 ÷ 3 = 8
27 ÷ 3 = 9
30 ÷ 3 = 10

DIVIDING A NUMBER BY 3

Hint: Think Multiplication!
3 x ? = _