Number Lines and Hundreds Charts

VOCABULARY

multiple

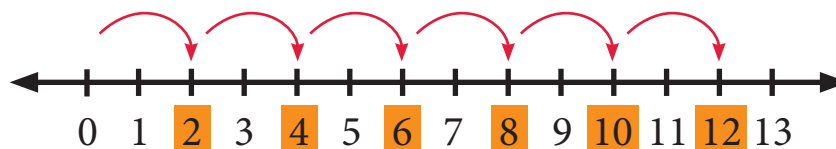skip-counting

hundreds chart

TARGET

I can use number line models and a hundred chart to solve multiplication problems.

In previous years, you may have skip-counted. **Skip-counting** is when you skip numbers while counting forward and backward. You can skip-count by 2 like this: 2, 4, 6, 8, 10, 12… (and so on). Each number in the list is a multiple of 2. A **multiple** of a number is the product of that number and an integer.

10 is a multiple of 5 because $2 \times 5 = 10$

40 is a multiple of 10 because $4 \times 10 = 40$

Number lines can help you see how to skip-count. The number line below shows skip-counting by 2.

Each shaded square shows a multiple of 2.

Fill in the blanks to skip-count.

| By 5 | 5, 10, 15, _____, _____, _____ | ← Multiples of 5 |

| By 3 | 3, 6, 9, _____, _____, _____ | ← Multiples of 3 |
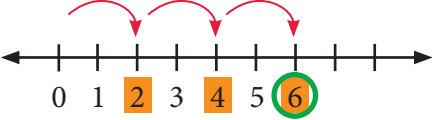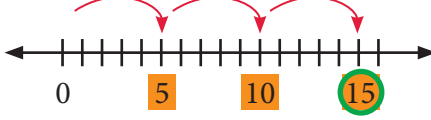
Skip-counting and number lines can both be used to multiply.

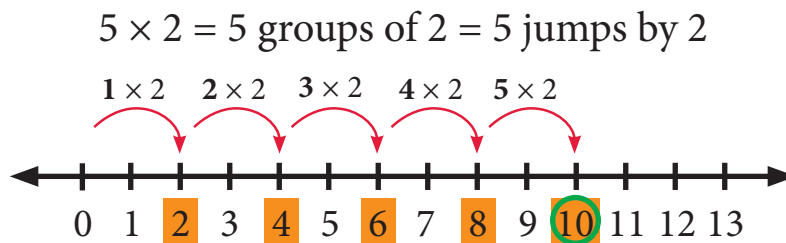|	$3 \times 2 = \boxed{?}$	$3 \times 5 = \boxed{?}$
Skip-Counting	2, 4, 6 .. Start counting by 2 and when you get to your third number, you have your answer.	5, 10, 15 .. Start counting by 5 and when you get to your third number, you have your answer.
Number Line	 0 1 2 3 4 5 6 Start at 0. Make 3 jumps of 2 on the number line. (Hint: $3 \times 2 = 3$ groups of 2) Stop after your third jump.	 0 5 10 15 Start at 0. Make 3 jumps of 5 on the number line. (Hint: $3 \times 5 = 3$ groups of 5) Stop after your third jump.
	$3 \times 2 = 6$	$3 \times 5 = 15$

Use skip-counting to finish the pattern and answer the problem.

2, 4, _____, _____, _____

5 groups of 2 = _____

$5 \times 2 =$ _____

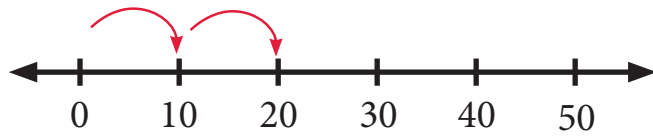When using number lines, count your jumps.

$$5 \times 2 = 5 \text{ groups of } 2 = 5 \text{ jumps by } 2$$

1×2 2×2 3×2 4×2 5×2

0 1 2 3 4 5 6 7 8 9 10 11 12 13

Number lines do not have to be equally spaced by 1. Sometimes they are equally spaced by 2, 5, 10, 100 or other numbers. This helps when number lines are used with large numbers.

Use a number line to finish the pattern and answer the problem.

10, 20, _____, _____

4 groups of 10 = _____

$4 \times 10 =$ _____

A **hundreds chart** is a chart with 10 rows of 10 numbers listed 1 to 100. It can help you multiply. You can easily see patterns on a hundreds chart.

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
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

$6 \times 5 =$?
Shade multiples of 5. They create a pattern. Look at the sixth number that is shaded.

$6 \times 5 = 30$

If you are skip-counting by 5 or multiplying any number by 5, the shaded numbers help you. Each shaded multiple of 5 is a "group of" 5. If you were to continue shading in multiples of 5, the column that shows numbers with 5 in the ones place would be completely shaded. The column that shows numbers with 0 in the ones place would also be completely shaded.

Here are the first two rows of a hundreds chart. Shade the multiples of 2 as you skip-count by 2.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

Now use the part of the hundreds chart you shaded to find:

$4 \times 2 = $ _____ $5 \times 2 = $ _____ $6 \times 2 = $ _____

$7 \times 2 = $ _____ $8 \times 2 = $ _____ $9 \times 2 = $ _____

Shade the multiples of 4 on the partial hundreds chart as you skip-count by 4.

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
31	32	33	34	35	36	37	38	39	40

Use the partial hundreds chart to find:

$1 \times 4 = $ _____ $3 \times 4 = $ _____ $4 \times 4 = $ _____

$6 \times 4 = $ _____ $7 \times 4 = $ _____ $8 \times 4 = $ _____

Cai used the partial hundreds chart to find $9 \times 3 = 28$. She made a mistake. Explain Cai's mistake and then find 9×3.

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

1. Use skip-counting to finish the pattern and answer the problem.

5, 10, _____, _____, _____

5 groups of 5 = _____

$5 \times 5 =$ _____

2. Jerry was given 2 marbles on Monday, 2 marbles on Tuesday and 2 marbles on Wednesday. He saved them each day and wrote the total number of marbles he had in a chart. Fill in the chart with the totals after each day if the pattern continued. How many marbles did he have after 7 days?

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Total Marbles	2	4	6				

$7 \times 2 =$ _____ marbles

3. Mel wanted to use a number line to figure out 4×3. She started her work, but did not finish. Help her by drawing her jumps (with arrows) on the number line. Then, solve the problem.

1 × 3

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
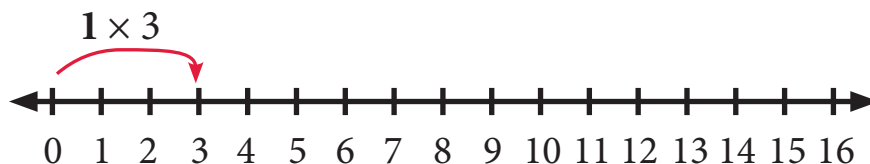
$4 \times 3 =$ _____

4. Use the number line to solve 7×5.

0 5 10 15 20 25 30 35 40 45 50
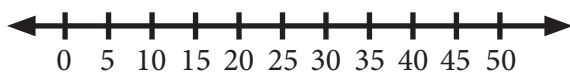
$7 \times 5 =$ _____

5. Shade in multiples of 10 on the hundreds chart using skip-counting by 10.

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
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

6. Use the shaded hundreds chart above to find each product.

$3 \times 10 =$ _____ $6 \times 10 =$ _____

$8 \times 10 =$ _____ $10 \times 10 =$ _____

7. Kimble solved a multiplication problem. His work on a partial hundreds chart is shown below. Which multiplication fact was he solving? Write a sentence to explain how you know your answer is correct.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

8. Use the partial hundreds chart.

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
31	32	33	34	35	36	37	38	39	40

   a. Shade the multiples of 2 blue as you skip-count by 2. Shade the multiples of 3 yellow as you skip-count by 3.

   b. Which numbers are shaded both blue and yellow?

   c. What number do you need to skip-count by in order to only shade the numbers in **part b**?

9. Show that $5 \times 2 = 2 \times 5$ using a number line.
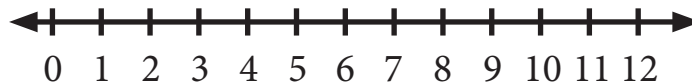
$$\xleftarrow{\qquad} \overset{0\ \ 1\ \ 2\ \ 3\ \ 4\ \ 5\ \ 6\ \ 7\ \ 8\ \ 9\ \ 10\ 11\ 12}{|\ \ |\ \ |\ \ |\ \ |\ \ |\ \ |\ \ |\ \ |\ \ |\ \ |\ \ |\ \ |} \xrightarrow{\qquad}$$

10. Brody said he would have to shade the entire hundreds chart if he was showing multiples of 1 until he found 100×1. Do you agree? Use pictures, words and/or numbers to explain your reasoning.

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
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100