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LESSON 3-3 DECIMAL SYSTEM: SUBTRACTION WITH EXCHANGE

|	
Objective:	Introduce Subtraction with exchange
Manipulatives:	Each of 1-9 number card sets, 10-90 number card sets, 100-900 number card sets, 1000-9000 number card sets (#148251); Operator set (#147268); Unit cubes (#147246); Ten rods (#148247); Hundred flats (#148248); Thousand cube (#148249); Thousand cubes (flat); (#147250)
Learning styles:	Cogitative; Writing; Tactile
Consumable?	Yes

"We are going to do more subtraction."

"You may choose a big number from the number cards." Make sure the student chooses thousands, hundreds, tens, and units number cards. For example, 7153.

"You may lay out the number cards at the top right of your mat." With our example the number cards would look like this:

7000	100	50	3

B. "Now you may get the material for each of these numbers and place the material *to the left of the number cards*." In this example, the student will bring 7 thousands, 1 hundred, 5 tens, and 3 units. Inspect and verify the material against the number cards.

When the material is verified, put the number cards on top of one another:

7	1	5	3
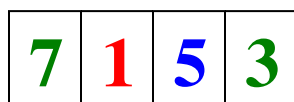
C. Pick a number that is smaller, but one that will require at least one exchange (borrow). In this case, you might pick 5412 one exchange is involved. Let's use 5412 as our example.

"You may bring me the number cards for 5412." Place the number cards for 5412 below those for 7153.

"Now you may take away material. You may take away 2 units and put them back in the bank. You may take away 1 ten and put it back in the bank. You may take away 4 hundreds and put them back in the bank."

Of course there is only 1 hundred; the student cannot take away 4. "Oh! I see we do not have enough hundreds for you to take away 4 hundreds. You may exchange a thousand for 10 hundreds first." After the student has done the exchange, "you may continue now and take away 4 hundreds and put them in the bank. You may take away five thousands and put them in the bank."

"Now you may get number cards for the material that is left." Verify the material against the number cards.

"We had 7153 and we took away 5412. How many do we have left?"

"This is subtraction."

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Lay down the minus sign. "This is the sign for subtraction, which you have seen is the sign for take away."

"This is the equation for the subtraction we just did:"

$$7153 - 5412 = 1741$$

"You may write this equation:"

F. "Now that you know how to do subtraction with exchange, let's do some simple problems."

Note to educator: The goal of this step is to prepare the student to subtract without using materials. For now the student should be able to exchange the ten for ten units.

11 – 2 =	12 – 7 =	14 – 8 =
11 – 3 =	12 – 8 =	14 – 9 =
11 – 4 =	12 – 9 =	15 – 6 =
11 – 5 =	13 – 4 =	15 – 7 =
11 – 6 =	13 – 5 =	15 – 8 =
11 – 7 =	13 – 6 =	15 – 9 =
11 – 8 =	13 – 7 =	16 – 7 =
11 – 9 =	13 – 8 =	16 – 8 =
12 – 3 =	13 – 9 =	16 – 9 =
12 – 4 =	14 – 5 =	17 – 8 =
12 – 5 =	14 – 6 =	17 – 9 =
12 – 6 =	14 – 7 =	18 – 9 =

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LESSON 3-35 DAYS OF THE WEEK REVIEW

Objective:	Review the days of the week
Manipulatives:	Foam ball (#147225)
Learning styles:	Auditory; Kinesthetic
Consumable?	No

A. "Let's play a game with the ball. I'll say a day of the week, Monday, and when you catch the ball you say the name of the next day – Tuesday."

"Now you have the ball. You say a day of the week and I need to say what the next day is when I catch the ball."

Repeat until the student is competent and has closure.

B. "Let's play the same game except that the person catching the ball has to say the name of the day *before*." For example, while rolling the ball saying, 'Tuesday,' the correct response upon catching the ball is 'Monday.'

Repeat until the student is competent and has closure.

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LESSON 3-68 MIRROR IMAGES

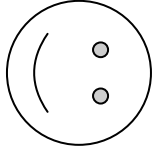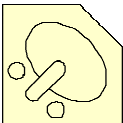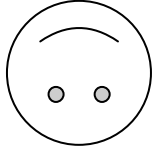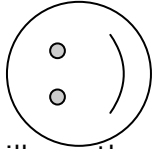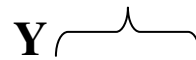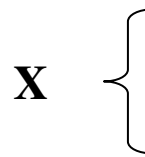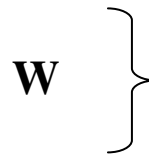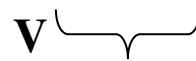|	
Objective:	Continue to investigate mirror images and introduce the word "symmetry"
Manipulatives:	none
Learning styles:	Cogitative; Visual
Consumable?	Yes
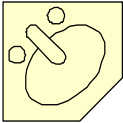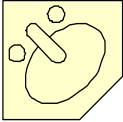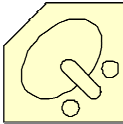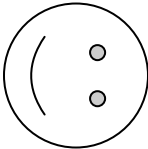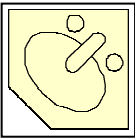
A. "This is what a mirror image looks like on paper:

Mirror

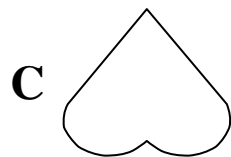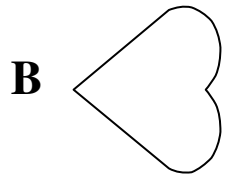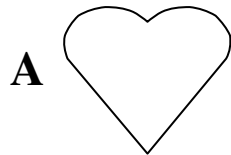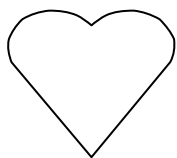Actual image   Mirror image
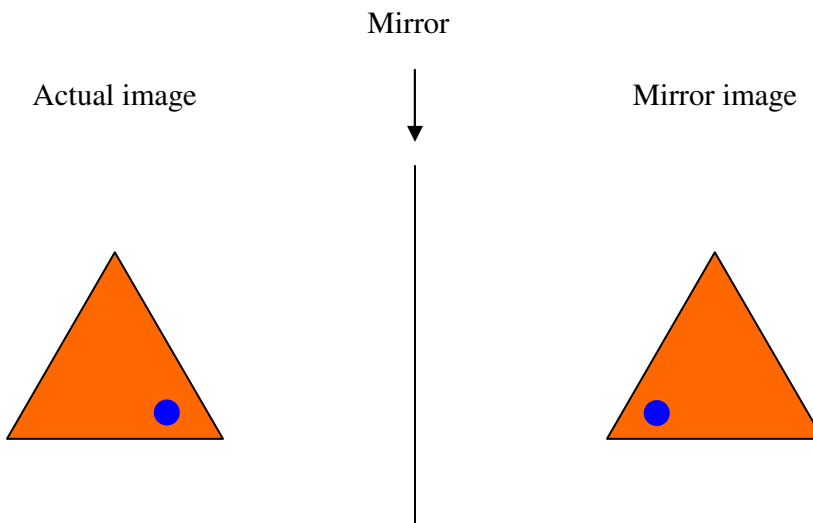
A. "Tell me about the blue dot."

"Objects that are close to the mirror stay close to the mirror in the mirror image."

B. "For each of these images, show me the correct mirror image. Keep in mind that objects close to the mirror stay close to the mirror, and objects far from the mirror stay far from the mirror."

P

Q

R

S

J

K

L

M

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A

B

C

D

V

W

X

Y

"Does the heart's mirror image differ from its actual image?"

"The heart is symmetric. Say with me: *symmetric*."

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LESSON 3-105 GEOMETRY: AREA OF A RECTANGLE

Objective:	Extend the idea of area to rectangles
Manipulatives:	none
Learning styles:	Writing; Visual
Consumable?	Yes

A. "Now let's measure how much area a rectangle covers. First, how many sides does a rectangle have?"

B. "Are the sides of a rectangle all the same?"

"This is a green rectangle that has been put down on top of a table:"
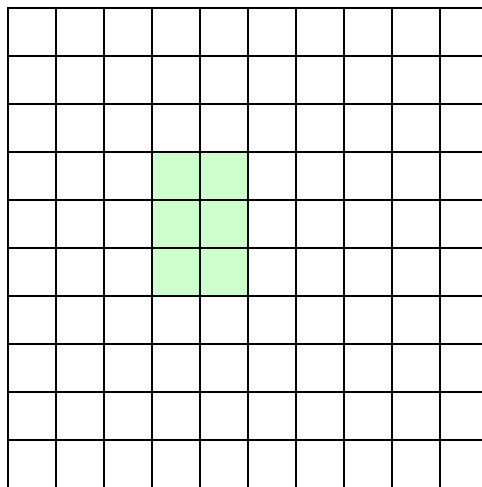
C. "How long is the longer side of the green rectangle?"

"How long is the shorter side of the green rectangle?"

D. "You may count the number of green boxes the square covers. How many green boxes does the square cover?"

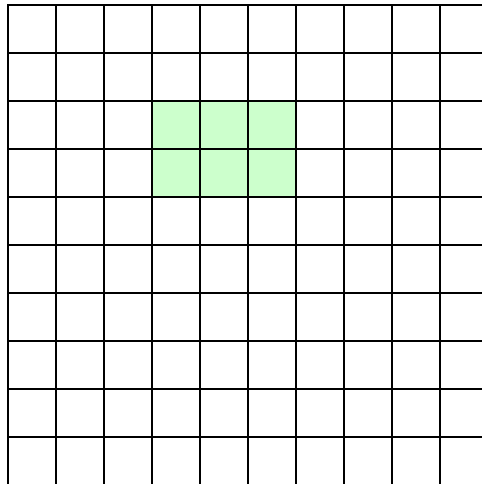E. "You may think of another way to tell how many boxes the square covers?"

F. "What is three times two?"

"The area of the rectangle that has side lengths of three and two is six. This is the equation:"

$$3 \times 2 = 6$$

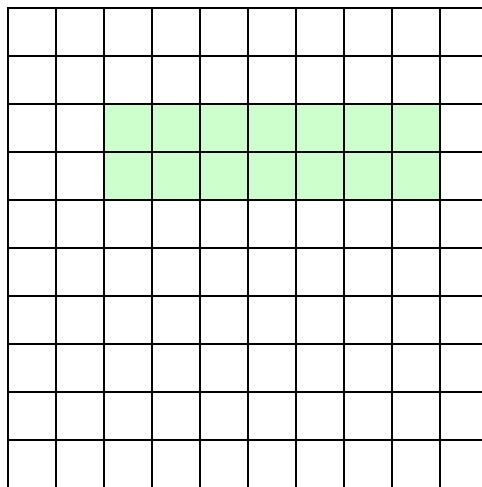ShillerMath Lesson Book 3 *Sample Lessons*

"This is another green rectangle:"

G. "How long are the sides of this rectangle?"

H. "How many boxes does the rectangle cover?"

I. "You may write the area equation:"

"This is another green rectangle:"

J. "How long are the sides of this rectangle?"

K. "How many boxes does the rectangle cover?"

L. "You may write the area equation:"

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"This is another green rectangle:"

M. "How long are the sides of this rectangle?"

N. "How many boxes does the rectangle cover?"

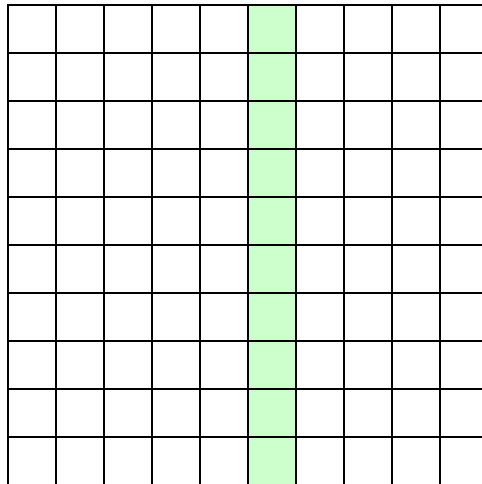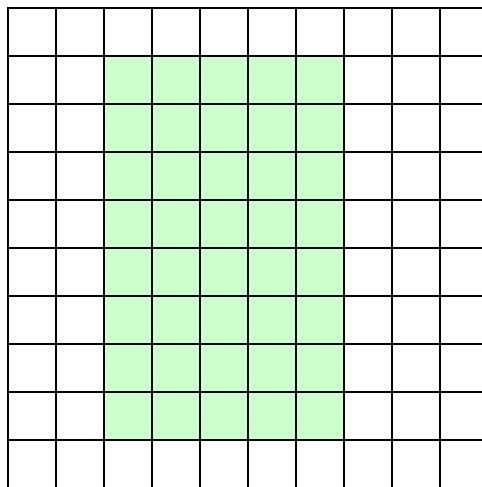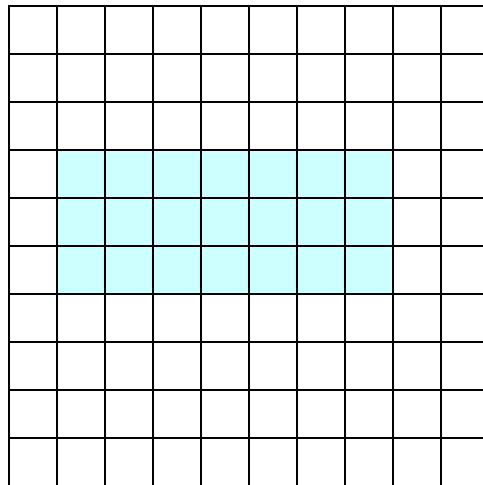O. "You may write the area equation:"

"This is another green rectangle:"

P. "How long are the sides of this rectangle?"

Q. "How many boxes does the rectangle cover?"

R. "You may write the area equation:"

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"This is a blue rectangle:"

S. "How long are the sides of this rectangle?"

T. "How many boxes does the rectangle cover?"

U. "You may write the area equation:"