Set A4  Number & Operations: Equivalent Names

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Skills & Concepts
★ fluently compose and decompose numbers to at least 10
★ connect physical and pictorial representations to addition and subtraction equations
★ use the equal sign and the word equals to indicate that two expressions are equivalent
★ add three or more one-digit numbers using the commutative and associative properties of addition
Bridges in Mathematics Grade 1 Supplement
Set A4 Numbers & Operations: Equivalent Names

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Bridges in Mathematics is a standards-based K–5 curriculum that provides a unique blend of concept development and skills practice in the context of problem solving. It incorporates the Number Corner, a collection of daily skill-building activities for students.

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Set A4 ★ Activity 1

Sixes & Sevens, Day 1

Overview
Each student builds a train of 5 or 6 Unifix cubes in 2 or 3 different colors, and writes an addition expression to match. The class examines the trains and expressions to find equivalent equations.

Skills & Concepts
★ fluently compose and decompose numbers to at least 10
★ connect physical and pictorial representations to addition and subtraction equations
★ use the equal sign and the word equals to indicate that two expressions are equivalent
★ add three or more one-digit numbers using the commutative and associative properties of addition

You’ll need
★ Numerals & Symbols cards (page A4.4, see Advance Preparation)
★ Unifix cubes (see Advance Preparation)
★ 3" × 5" index cards, class set plus a few extra
★ pocket chart
★ Work Places currently in use

Advance Preparation Run 4 copies of the Numerals & Symbols cards on cardstock and cut the cards apart. Have students help you set up a container of cubes for each table or group of 4 students. Each container should have about 100 Unifix cubes in 4–5 different colors.

Instructions for Sixes & Sevens, Day 1
1. Gather students to your discussion circle. Explain that they are going to use Unifix cubes today to learn more about adding numbers. Tell them that, in a minute, each of them is going to make a train of 6 or 7 Unifix cubes using 2 or 3 different colors. Demonstrate by making a train of 4 red and 2 red cubes. Note with students that the colors are grouped—all the reds are together and all the yellows are together.

2. Next, make a train of 7 cubes using 3 different colors, but don't tell students what your total is beforehand. When you're finished, give them a moment to examine your train carefully and share with the person next to them what they believe the total is. Then ask several volunteers to share their answer and their reasoning with the class.

Students I think it’s 7 because I counted them when Mr. S. was putting them together. It’s 7 because 2 white and 2 brown makes 4. There’s 3 in the middle, so that’s 5, 6, 7. Two and 3 is 5, and then 2 more at the end makes 7.

3. Send students back to their tables. Assign the students seated at half the tables to each make a train of 6 cubes. Have the students at the rest of the tables each make a train of 7 cubes. Encourage them to
make their trains different than yours and different from anyone sitting near them. Remind them that they can only use 2 or 3 colors, and ask them to keep the colors grouped together. That is, if they use 3 browns and 3 yellows, put all the browns together and all the yellows together.

4. As students finish, have them return to the discussion circle with their trains. Call them a few at a time to set their trains in the middle of the circle. Have them group the trains of six in one area, and the trains of seven in another.

5. Give students a minute or two to pair-share their observations, and then invite a few of them to share their ideas with the class. What do they notice about the trains?

Students
- They're all 6 over here, and 7 over there.
- They're all the same long in each pile, but they're different colors.
- Mine's on top. It's 4 greens and 2 blues, see?
- Mine is the one in the middle of the 7's. It has 4 greens and 3 blues.

6. Choose 5 trains from each set and put the rest aside for now. (Explain that you'll come back to them tomorrow.) Then work with input from the class to write a matching expression on an index card for each of the 10 trains you selected.
7. Choose one of the trains from the collection. Set it on the chalk ledge or on a small table next to your pocket chart. Use the matching expression card, along with the other cards you prepared for this activity to create an equation in the pocket chart. Start with the total, however. Ask students to read the equation with you. Invite their comments and observations. Some may feel that you've inserted the cards backwards, and that the equation should end with the total, rather than starting with it. Explain that the equals sign means “the same as”, and read the sentence that way with the class (i.e., 7 is the same as 3 + 4).

![Equation 1](image)

8. Repeat Step 7 several times, but change the order in which you arrange the cards, starting with the total sometimes and the expression others. Read each new equation with the class. Continue to use the phrase “is the same as” in place of equals.

9. Next, choose two of the 6 trains or two of the 7 trains. Set them on the chalk ledge or table, and solicit students' agreement that they both have the same number of cubes. Then use your cards to create an equation that matches the trains. Read the equation with your students and ask volunteers to explain it to the class.

![Equation 2](image)

**Teacher** Is this true? Is 5 + 1 really the same as 3 + 3? Talk with the person next to you for a moment, and then let's have some volunteers share their thinking with the class.

**Students** They're both 6, so they're kind of the same.
The numbers look different, but both trains have 6 in them.
Five and 1 is 6, right? Then 3 and 3 is 6. So they're the same.
I don't get it!

10. Repeat Step 9 until you've used all the trains and matching expression cards. Tell students you'll return to the activity the following day, and send them out to do Work Places.

---

**Note** Return the cubes from the 10 trains you used today to your tub of cubes. Save the other trains for use in the next activity.
### Numerals & Symbols cards

<table>
<thead>
<tr>
<th>6</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>=</td>
<td>=</td>
</tr>
<tr>
<td>=</td>
<td>=</td>
</tr>
</tbody>
</table>
Set A4 ★ Activity 2

Sixes & Sevens, Day 2

Overview
Students continue to explore equations during this activity, and a new Work Place is introduced.

Skills & Concepts
★ fluently compose and decompose numbers to at least 10
★ connect physical and pictorial representations to addition and subtraction equations
★ use the equal sign and the word equals to indicate that two expressions are equivalent
★ add three or more one-digit numbers using the commutative and associative properties of addition

You’ll need
★ 3” × 5” index cards (see Advance Preparation)
★ Unifix Cube Equations, 5’s, 6’s, 7’s, 8’s, 9’s, and 10’s (pages A4.9–A4.20, see Advance Preparation)
★ resealable bag of crayons in colors to match the Unifix cubes (see Advance Preparation)
★ Unifix cube trains from Set A4, Activity 1
★ Numerals & Symbols cards from Set A4, Activity 1
★ pocket chart
★ individual chalkboards/whiteboards, chalk/pens, and erasers for each student
★ Work Places currently in use

Advance Preparation Write an expression on an index card to match each of the Unifix cube trains you saved from the previous activity. Also, run 10–15 copies of each pair of Unifix Cube Equations worksheets. Place these in pocket folders. Put the pocket folders, along with several hundred loose Unifix cubes, and the bag of crayons into a tub to create a new Work Place. (This new Work Place can be used in place of Work Place 2J, 50 or Bust!)

Instructions for Sixes & Sevens, Day 2
1. Gather students to your discussion circle. Set the rest of the Unifix trains from the previous activity in the center of the circle, 6’s in one area and 7’s in another. Hold up one by one the expression cards you’ve prepared. Read each card with the students, and have a volunteer lay it beside the matching train on the rug.

![Expression cards](image-url)
2. When all the trains have been labeled, have a student or two help you gather up all the cards. (Leave the trains where they are in the middle of the circle.) As the cards are being gathered, ask helpers to hand out individual chalkboards, chalk, and erasers to everyone sitting in the circle.

3. Mix the expression cards thoroughly, and place them in a stack face-down on a small table near your pocket chart. Use your Numerals & Symbols cards to place a 7 and an equals sign in the pocket chart. Ask a student to come up and draw an expression from the top of the stack and place it to the right of the equals sign in the pocket chart.

4. Read the resulting equation with your students, using the term “is the same as” for the equals sign. Is it true? If so, ask students to write a “T” on their chalkboards. If it’s not true, ask students to write an “F” for false on their chalkboards. Have them hold up their boards when they’re finished, and then ask two or three students to explain their answers.

\[
\begin{array}{c}
7 \\
= \\
5 + 1
\end{array}
\]

Students I put an F because 1 + 5 is 6. It’s not 7.
I did too. They’re not the same!
They could be the same if that card said 2 + 5.

5. Ask one of the students to find the train that matches the expression just posted, and hold it up or set it near the pocket chart so children can use it to confirm their responses. Then ask the students to erase their boards. Place an equals sign and a 6 in the next row on the pocket chart. Ask a volunteer to draw another expression card from the top of the stack, and place it in the pocket chart to the left of the equals sign. Read the resulting equation with your class and have students write a “T” or an “F” on their chalkboards. Ask them to pair-share their answers, and then invite two or three of them to explain their thinking to the class. Again, have a student find the matching train and hold it up or set it near the pocket chart so children can confirm their responses.

\[
\begin{array}{c}
2 + 2 + 2 \\
= \\
6
\end{array}
\]

Students Yep, that one’s true.
I put a T for true.
Two plus 2 is 4, and then 2 more is 6.
You can see it’s right because there are 6 cubes on that train.

6. Repeat Step 5 several times. Use both 6’s and 7’s cards, and switch the positions they occupy in the equation, sometimes to the right of the equals sign, and sometimes to the left.

7. When you’re down to the last 6 cards, have helpers draw two cards from the stack and place them in the pocket chart on either side of the equals sign. Ask different helpers to find the matching trains and
Activity 2  Sixes & Sevens, Day 2 (cont.)

set them near the pocket chart. Have students examine the equation and write a “T” or an “F” on their boards to indicate whether they think it's true or false. Then call on volunteers to explain their reasoning.

8. When all the expression cards have been used, ask students to work together to correct the false equations by switching some of the cards or using some of your extra 6's and 7's cards.

Teacher  Do we have to fix all of these equations to make them true?

Students  No! Just the wrong ones!
Can I put a 6 card in for that one on the top? Then it would be right.

Teacher  Sure! Are there any others that need to be fixed?

Students  Yeah! 3 + 1 + 2 is 6 not 7!
Can I fix it?
Six is not the same as 5 + 2.
Put in a 7 card for that one!
Activity 2  Sixes & Sevens, Day 2 (cont.)

9. Introduce the new Unifix Cube Equations Work Place (see Advance Preparation note). Show students copies of the worksheets, and model the activities as needed. Demonstrate that they’ll need to choose a sheet and build 4 trains to match the number they selected. Remind them to use only 2 or 3 colors, with like colors grouped to make each train. Then they’ll need to color in the trains on the sheet to match, write an equation for each, and complete the problem at the bottom of the sheet. After that, they’ll turn the sheet over, and complete the problems on the back with the help of the number line. Note with them that there are worksheets for all the numbers, 5–10, so they can choose their own challenge level.

10. If time allows, send students out to do Work Places.

---

Note  When you do Friday’s Figuring in the Number Corner over the coming months, take the opportunity to reinforce the idea that equals means “the same as”. You can do this by placing the day’s date at the beginning of some of the equations you record on the charts, rather than always at the end. If you also read the equals sign as “equals” sometimes, and “is the same as” sometimes, students will make a strong connection between the two by the end of the year.
Unifix Cube Equations, 5’s page 1 of 2

1 Color in the unifix cubes and write an equation to match each train.

a. __________________________ = 5

b. 5 = __________________________

c. __________________________ = 5

d. 5 = __________________________

2 Circle T or F.

- a. 1 + 4 = 5  T or F
- b. 5 = 1 + 2 + 2  T or F
- c. 5 = 2 + 2  T or F
- d. 2 + 3 = 5  T or F

(continued on back)
Unifix Cube Equations, 5’s page 2 of 2

3  Add

2  5  3  4  0  1
+ 3 + 0 + 1 + 0 + 3 + 2

2  3  3  1  2  2
+ 2 + 0 + 2 + 1 + 2 + 1

2 + 3 = ________  2 + 2 = ________  3 + 1 + 1 = ________

4  Subtract

4  5  4  5  3  5
- 2 - 0 - 4 - 1 - 3 - 5

5  3  5  4  5  3
- 2 - 0 - 4 - 1 - 3 - 2

5 - 3 = ________  4 - 1 = ________  5 - 4 = ________

Can I help you?
1. Color in the unifix cubes and write an equation to match each train.

   a
   
   ____________________________ = 6

   b
   
   6 = __________________________

   c
   
   ____________________________ = 6

   d
   
   6 =__________________________

2. Circle T or F.

   a  1 + 4 = 6    T or F

   b  6 = 2 + 2 + 3    T or F

   c  6 = 3 + 3    T or F

   d  4 + 2 = 6    T or F

   (continued on back)
Unifix Cube Equations, 6’s page 2 of 2

3 Add

\[
\begin{array}{cccccc}
3 & 0 & 3 & 4 & 0 & 2 \\
+ 3 & + 6 & + 1 & + 0 & + 5 & + 3 \\
\hline \\
3 & 2 & 4 & 4 & 2 & 5 \\
+ 2 & + 4 & + 2 & + 1 & + 2 & + 1 \\
\hline
\end{array}
\]

3 + 3 = ________ 2 + 1 + 2 = ________ 0 + 6 = ________

4 Subtract

\[
\begin{array}{cccccc}
5 & 6 & 5 & 6 & 5 & 6 \\
- 2 & - 0 & - 4 & - 1 & - 3 & - 5 \\
\hline \\
6 & 4 & 6 & 4 & 6 & 6 \\
- 2 & - 2 & - 4 & - 3 & - 3 & - 6 \\
\hline
\end{array}
\]

6 – 3 = ________ 5 – 2 = ________ 4 – 3 = ________

Can I help you?
Unifix Cube Equations, 7’s page 1 of 2

1 Color in the unifix cubes and write an equation to match each train.

\[ \underline{\text{a}} \]

\[ \underline{\text{b}} \]

\[ \underline{\text{c}} \]

\[ \underline{\text{d}} \]

2 Circle T or F.

\[ \text{a} \quad 3 + 4 = 7 \quad \text{T or F} \]

\[ \text{b} \quad 7 = 2 + 3 + 1 \quad \text{T or F} \]

\[ \text{c} \quad 7 = 3 + 4 \quad \text{T or F} \]

\[ \text{d} \quad 7 + 0 = 7 \quad \text{T or F} \]

(continued on back)
Unifix Cube Equations, 7’s page 2 of 2

3 Add

\[
\begin{array}{cccccc}
3 & 3 & 2 & 4 & 7 & 2 \\
+ 4 & + 3 & + 5 & + 2 & + 0 & + 3 \\
\hline
\end{array}
\]

\[
\begin{array}{cccccc}
2 & 4 & 4 & 6 & 6 & 5 \\
+ 2 & + 3 & + 1 & + 1 & + 0 & + 2 \\
\hline
\end{array}
\]

3 + 4 = \_ \_ \_ \_ \_ \_ \_ \_ 
2 + 2 + 2 = \_ \_ \_ \_ \_ \_ \_ \_ 
5 + 2 = \_ \_ \_ \_ \_ \_ \_ \_ 

4 Subtract

\[
\begin{array}{cccccc}
7 & 7 & 6 & 7 & 6 & 7 \\
- 7 & - 0 & - 4 & - 1 & - 3 & - 5 \\
\hline
\end{array}
\]

\[
\begin{array}{cccccc}
7 & 5 & 7 & 5 & 7 & 7 \\
- 2 & - 2 & - 4 & - 3 & - 3 & - 6 \\
\hline
\end{array}
\]

7 - 2 = \_ \_ \_ \_ \_ \_ \_ \_ 
6 - 4 = \_ \_ \_ \_ \_ \_ \_ \_ 
7 - 4 = \_ \_ \_ \_ \_ \_ \_ \_ 

Can I help you?

Can I help you?
Unifix Cube Equations, 8’s page 1 of 2

1 Color in the unifix cubes and write an equation to match each train.

a  \[ \underline{\hspace{4cm}} = 8 \]

b  \[ 8 = \underline{\hspace{4cm}} \]

c  \[ \underline{\hspace{4cm}} = 8 \]

d  \[ 8 = \underline{\hspace{4cm}} \]

2 Circle T or F.

a  \[ 5 + 1 = 8 \quad T \text{ or } F \]

b  \[ 8 = 2 + 3 + 1 \quad T \text{ or } F \]

c  \[ 8 = 4 + 4 \quad T \text{ or } F \]

d  \[ 3 + 5 = 8 \quad T \text{ or } F \]

(continued on back)
Unifix Cube Equations, 8’s page 2 of 2

3 Add

\[
\begin{array}{cccccc}
4 & + & 4 & 3 & + & 8 \\
& + & 3 & 5 & + & 0 \\
\hline
& & & & & \\
3 & + & 2 & 1 & + & 2 \\
& + & 3 & 5 & + & 5 \\
\hline
& & & & & \\
\end{array}
\]

\[
4 + 3 = \underline{7} \quad 5 + 3 = \underline{8} \quad 4 + 2 + 2 = \underline{8}
\]

4 Subtract

\[
\begin{array}{cccccc}
7 & - & 8 & 8 & - & 7 \\
& - & 0 & 4 & - & 3 \\
\hline
& & & & & \\
8 & - & 2 & 8 & - & 8 \\
& - & 2 & 7 & - & 3 \\
\hline
& & & & & \\
\end{array}
\]

\[
8 - 5 = \underline{3} \quad 7 - 5 = \underline{2} \quad 8 - 4 = \underline{4}
\]

Can I help you?
Unifix Cube Equations, 9’s page 1 of 2

1 Color in the unifix cubes and write an equation to match each train.

a

__________________________ = 9

b

9 = __________________________

c

__________________________ = 9

d

9 =__________________________

2 Circle T or F.

a 5 + 4 = 9  T or F

b 9 = 3 + 3 + 3  T or F

c 9 = 3 + 6  T or F

d 2 + 7 = 9  T or F

(continued on back)
Unifix Cube Equations, 9’s page 2 of 2

3 Add

\[
\begin{array}{cccccc}
5 & 4 & 3 & 2 & 9 & 4 \\
+ 4 & + 4 & + 6 & + 2 & + 0 & + 3 \\
\hline
\end{array}
\]

\[
\begin{array}{cccccc}
7 & 5 & 8 & 6 & 4 & 2 \\
+ 2 & + 2 & + 1 & + 2 & + 5 & + 6 \\
\hline
\end{array}
\]

\[
4 + 3 = \underline{7} \quad 5 + 2 + 2 = \underline{9} \quad 6 + 2 = \underline{8}
\]

4 Subtract

\[
\begin{array}{cccccc}
8 & 9 & 8 & 9 & 7 & 9 \\
- 5 & - 0 & - 4 & - 1 & - 3 & - 5 \\
\hline
\end{array}
\]

\[
\begin{array}{cccccc}
9 & 7 & 9 & 9 & 9 & 8 \\
- 2 & - 2 & - 8 & - 9 & - 3 & - 6 \\
\hline
\end{array}
\]

\[
9 - 4 = \underline{5} \quad 9 - 6 = \underline{3} \quad 9 - 7 = \underline{2}
\]
Unifix Cube Equations, 10’s page 1 of 2

1 Color in the unifix cubes and write an equation to match each train.

a

__________________________ = 10

b

10 = __________________________

c

__________________________ = 10

d

10 = __________________________

2 Circle T or F.

a 3 + 5 = 10 T or F

c 10 = 5 + 5 T or F

b 10 = 2 + 4 + 4 T or F

d 3 + 6 = 10 T or F

(continued on back)
Unifix Cube Equations, 10’s page 2 of 2

3 Add

\[
\begin{array}{ccccccc}
5 & 4 & 3 & 2 & 10 & 5 \\
+ 5 & + 5 & + 7 & + 3 & + 0 & + 3 \\
\hline
\hline
8 & 5 & 9 & 6 & 4 & 1 \\
+ 2 & + 2 & + 1 & + 3 & + 6 & + 6 \\
\hline
\hline
\end{array}
\]

\[
3 + 4 + 2 = \underline{11} \quad 2 + 8 = \underline{10} \quad 2 + 3 + 5 = \underline{11}
\]

4 Subtract

\[
\begin{array}{ccccccc}
9 & 10 & 8 & 10 & 9 & 10 \\
- 5 & - 0 & - 4 & - 1 & - 3 & - 5 \\
\hline
\hline
10 & 7 & 10 & 10 & 10 & 10 \\
- 2 & - 3 & - 8 & - 7 & - 3 & - 10 \\
\hline
\hline
\end{array}
\]

\[
10 - 4 = \underline{6} \quad 10 - 6 = \underline{4} \quad 10 - 9 = \underline{1}
\]

Can I help you?