Review for the quiz on operations concepts

1. Identify the problem types for addition and subtraction word problems. Tell which in a pair is easier Examples:

Peter made 4 paper airplanes. Later he made 3 more paper airplanes. How many paper airplanes did he make in all? Join*, Result Unknown, easier	There are 6 green bouncy balls, and 6 blue bouncy balls in the toy box. How many bouncy balls are in the toy box? PPW-Whole unknown
Nathan has 15 toy ninjas. Ralph has 8 fewer toy ninjas than Nathan. How many toy ninjas does Ralph have? CQU, Easier	Wanda has 3 big erasers. She has 5 fewer big erasers than small erasers. How many small erasers does she have? CRU
Shauna blew up 4 balloons. How many more does she have to blow up to have 5 balloons? J*CU-easier	Henry had 15 mini erasers. He gave some mini erasers to Luke. Now he has 8 mini erasers left. How many mini erasers did he give to Luke? SCU**
Briana had 14 rubber bands. She gave 8 rubber bands to Gina. How many rubber bands does Briana have left? SRU**-easier	Sandy had 5 marbles. Marie had 6 marbles. How many more marbles did Marie have than Sandy? CDU
There are 19 paper squares in the desk. 9 of the paper squares are green and the rest are yellow. How many of the paper squares are yellow? PPW-Part unknown-easier	Marie had some Zhu zhu pets. For her birthday, she got 2 more Zhu zhu pets. Now she has 4 Zhu zhu pets. How many Zhu zhu pets did she have before her birthday? JSU*

*Join = Add to. **Separate = Take from

(FYI: I probably won't put all of the easy ones on the left on the quiz)

2. Explain how to solve addition and subtraction problems using the four basic **direct modeling** strategies

Examples: Describe how to direct model each of these:

- ARU: Rita drew 6 pictures. Later she drew 3 more pictures. How many pictures did she draw in all?

Put out 6 counters. Put out 3 more counters. Count all of the counters:

□□□□□□ □□□

count all

- TRU: Ellen had 7 butterfly stickers. She gave 2 butterfly stickers to Gwen. How many butterfly stickers does Ellen have left?

Put out 7 counters. Separate out 2 of the counters. Count the remaining counters;

□ □ □ □ □ ~~□ □~~

count the ones left.

- ACU: Diana blew up 4 balloons. How many more does she have to blow up to have 6 balloons?

Put out 4 counters. Put out more counters (in another pile) while counting up to 6. Count the added counters;

□ □ □ □ □ □

1,2,3,4…..5,6

count these

- CDU: Diana has 7 mylar balloons and 4 latex balloons. How many more mylar balloons than latex balloons does Diana have?

Take out 7 counters. In another pile take out 4 counters. Line up/match up the counters from the two piles. Count the leftover/unmatched counters

□ □ □ □ □ □ □

□ □ □ □ count these

3. Identify whether a multiplication problem is multiplication, measurement division or partitive division and Explain how to solve a multiplication or division problem by **direct modeling**

Examples:

- Marie has 3 boxes of cookies. In all, there are 18 cookies. How many cookies are in each box?

Partitive division. Take out 18 counters. Deal them one by one into three piles. Count the number in one pile.

- A bee has 6 legs. How many legs to 5 bees have?

Multiplication. Make a group of 6 counters, and another and another until you have 5 groups that each have 6 counters. Count all of them to get the answer.

- A pack of Pokemon cards costs $4. Kylie has $20. How many packs of Pokemon cards can she buy?

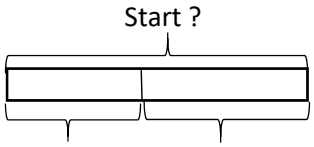
Measurement division. Take out 20 counters. Make groups of 4 from the 20. Count the number of groups.

Draw a **bar diagram** to show how to solve each of the following word problems, and write the associated equations:

- Addition and subtraction bar diagrams need labels
- Multiplicative comparison bar diagrams need labels
- Other multiplication and division bar diagrams do not need labels
- Each bar diagram needs an addition or multiplication equation (which may be an unknown part equation)
- Some bar diagrams should also have a subtraction or division equation.
- **Note: each bar diagram should have a ? to mark the unknown**

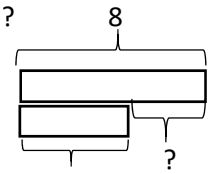
Some sample problems:

a. Sandra had 4 erasers left after she gave 7 erasers to her friends. How many erasers did she start with?



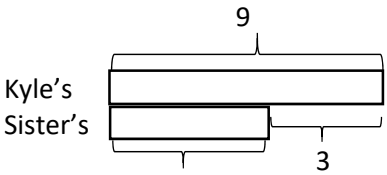
4+7=?

b. Marie has 8 blue balloons and 5 red balloons. How many fewer red balloons than blue balloons does she have?



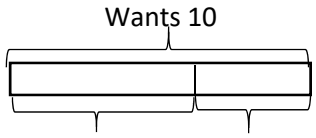
5 8-5=? 5+?=8

c. Kyle has 9 transformers. He has 3 more than his sister. How many does his sister have?



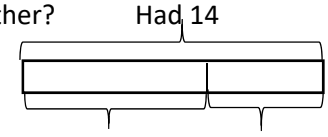
9-3=? 3+?=9

d. Amanda has 6 origami cranes. How many more does she need to make to have 10 origami cranes?



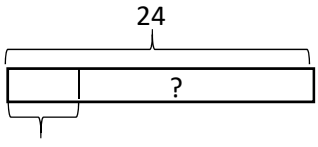
6+?=10 10-6=?

e. Paul had 14 cookies. He gave some to his brother, and now he has 8. How many cookies did he give to his brother?



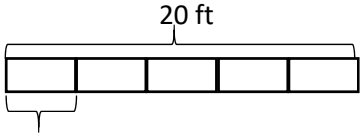
8+?=14 14-8=? (optional 14-?=8)

f. A tootsie roll costs 4¢. Ross has 24¢. How many tootsie rolls can he buy?



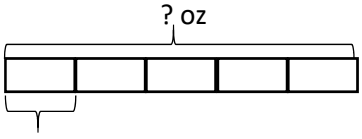
24 ÷ 4 = ? 4 × ? = 24

g. A toy train can go 20 feet in 5 seconds. How many feet can it go in one second?



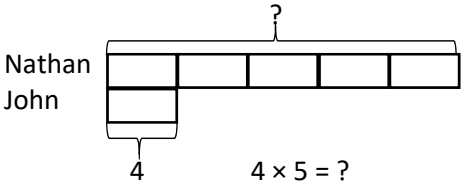
20 ÷ 5 = ? 5 × ? = 20

h. A Jar of jam has 8 ounces of jam in it. How many ounces of jam are in 5 jars?



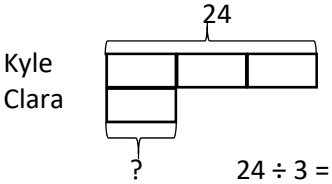
5 × 8 = ?

i. John has 4 pencils. Nathan has 5 times as many pencils as John. How many pencils does Nathan have?



4 × 5 = ?

j. Kyle has 24 crayons. He has 3 times as many crayons as Clara. How many crayons does Clara have?



24 ÷ 3 = ? 3 × ? = 24