# Student Interview Protocol Instructions
# Moving Students to Derived Facts

Attached are the masters for five problems you will use in your interview with two primary students. The attachments are as follows:

- Teacher recording sheet (You will need to make one copy for yourself to use for each student you interview.)
- Student copy masters of the problems (You will need to make one copy per student for them to see and record any written work that they might need to do.)

Do not discuss the problems with students prior to presenting the tasks. Give all of the problems to the student in one sitting if at all feasible.

Take as many notes as you can on your recording sheet as to how the student explained their thinking. Ask questions of the students to help you understand how they made sense of the problem. This interview is a teaching interview. Your goal is to allow students enough time to come up with a solution strategy but feel free to ask guiding questions if they get stuck. The main findings from the interviews are the strategies the students use as well as the questioning strategies you use to probe student thinking and guide strategies. You should provide students with paper, pen or pencil, and some sort of counting manipulative (i.e. Unifix cubes or counting bears). Students will need a rekenrek for questions 2 through 5.

You are welcome to try to interview a pair of students at the same time. The students seem to feel more comfortable discussing their strategies when they work in pairs. If you try this approach you should give each student his or her own rekenrek. You are to use the interviews as practice for whole class discussions using similar problems.

Each question has goals and the teacher recording sheets reflect the goal for each question.

# Teacher Recording Sheet

## Interview Protocol – Moving Students to Derived Facts

**Directions:** Present these items to your student(s) one at a time. Read each question aloud as you present each problem. Ask the students to think out loud as they work. Write down the strategies they describe. You are able to use guiding questions to accomplish the desired goals. Write down what you said that guided your student(s) towards the desired goals.

1. Nina has 7 toy cars. Jenna gives her 8 more toy cars. How many toy cars does Nina have now?

   Allow the student to use any strategy (i.e. direct modeling, counting on, recall, derived fact) they desire to solve the problem correctly. Regardless of the strategy, ask the student to use one ten-frame to show Nina's toy cars and the other ten-frame to show the toy cars that Jenna will give Nina. You will need to provide some sort of counters for the ten-frames.

   Ask: **"How can you use the ten-frame to show the number of toy cars that Nina has now?"**

   Try to encourage students who use a direct modeling or a counting-on strategy to move counters on the ten-frame to either make ten on one or notice doubles.

**Goal:**

The student will use a ten-frame to show a solution emphasizing a doubles strategy or a make ten strategy.

2. Each student needs a rekenrek for this problem. Say: "Slide 5 beads on the top row of your rekenrek over to the left. [Wait.] Slide more beads over to make 8 beads on the left." [Students may slide beads on the top, bottom, or both if they desire.]

   If students slide over three beads one at a time say, "I noticed that you slid the 3 beads over using **3 pushes**. How can you make 8 beads on the left using **one push**?" Other wise say, "I noticed that you slid over 3 beads using **one push**."

   Say: **"Begin with [start]. Try to make the number [target] using one push."** [Repeat with other examples.]

| | start | target |
|---|---|---|
| a) | 4 on top<br>0 on bottom | 9 |
| b) | 5 on top<br>3 on bottom | 10 |
| c) | 8 on top<br>0 on bottom | 13 |
| d) | 6 on top<br>5 on bottom | 14 |

3. Each student needs a rekenrek for this problem.

a) Say: "Please make 6 on your rekenrek using **my way**."
[5 on top, 1 on the bottom]

b) Say: "Make 6 on your rekenrek that is **not my way**."

c) Say: "Make 6 on your rekenrek using another way."

d) Say: "I am going to make _____ **my way**." [Make _____ on your rekenrek but keep it hidden.] "Use your rekenrek to make _____ my way."

Put in a number for the blank that would provides some challenge. Possibilities include 7, 13, 18.

As students use their rekenrek to make the target number [e.g. 3 on top, 4 on the bottom] respond with statements like: "That is a good way to make 7 but it is not may way." Keep doing this until several ways to generate the target number has been created.

**Goal:**

To find various ways to compose a number using a rekenrek.

4. "I am going to show you a number rack (rekenrek) with a given number of beads slid to the left. I am only going to show you the rekenrek for a short time then put it down. "
Show the rekenrek as described below and ask, "How many beads do you see? How do you see them?" You may want to hide the beads on the right of the rekenrek. Do the column you feel challenges your student appropriately.

| | K | Grade 1 | Grade 2 |
|---|---|---|---|
| | **Doubles/Near-Doubles** | **Making-Tens** | **Making-Tens or Near-Doubles** |
| a) | 3 on top<br>3 on bottom | 5 on top<br>5 on bottom | 8 on top<br>8 on bottom |
| b) | 4 on top<br>3 on bottom | 5 on top<br>7 on bottom | 8 on top<br>7 on bottom |
| c) | 3 on top<br>4 on bottom | 5 on top<br>9 on bottom | 8 on top<br>4 on bottom |
| d) | 4 on top<br>4 on bottom | 7 on top<br>3 on bottom | 9 on top<br>9 on bottom |
| e) | 5 on top<br>4 on bottom | 7 on top<br>4 on bottom | 9 on top<br>7 on bottom |

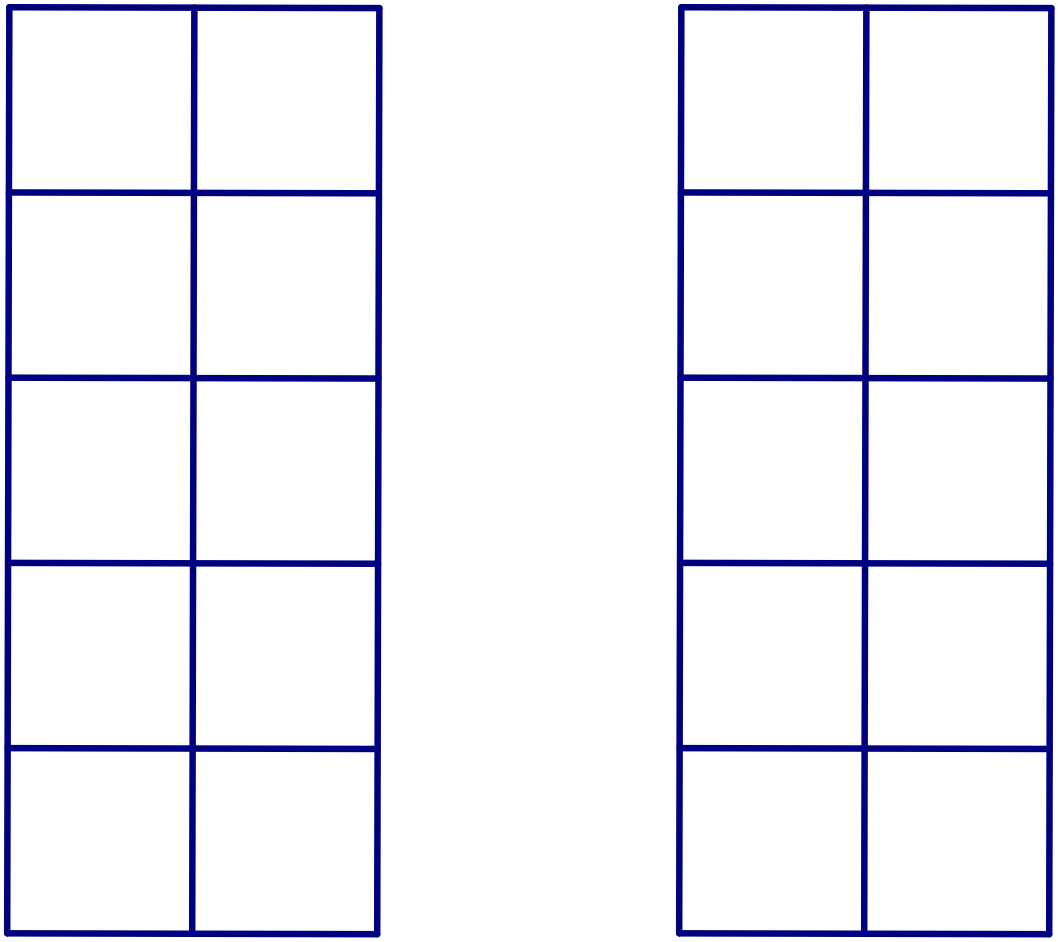
**Goal:**

Use near-doubles and make ten strategies to determine number or beads shown on a rekenrek.

| | |
|---|---|
| 5. There are _____ blue marbles and some red marbles in a bag. There are a total of _____ marbles in the bag. How many red marbles are in the bag?<br><br>Say: “Use the rekenrek to model this problem.”<br><br>After they solve the problem ask them to solve the problem again using the minimum number of pushes for the subtraction part.<br><br>Choose number pair that is an appropriate challenge for your student. (4,9) means 4 blue marbles and 9 total marbles. Write the number pair in the blanks.<br>$(\mathbf{4}, \mathbf{9})$ $(\mathbf{8}, \mathbf{12})$ $(\mathbf{13}, \mathbf{20})$<br><br>**Goal:**<br>Students solve the part-part-whole (part unknown) problem using a rekenrek. | |

# Interview – Whole Number Operations

1. Nina has 8 toy cars. Jenna gives her 7 more toy cars. How many toy cars does Nina have now?



5. There are _____ blue marbles and some red marbles in a bag. There are a total of _____ marbles in the bag. How many red marbles are in the bag?