GPB First Grade Handout Set 1- Wheel Shop

<u>**Formative Assessment Task:**</u> **Wheel Shop (adapted from the Noyce Foundation)**

(1-2 Days)

<u>**CONTENT STANDARDS ADDRESSED**</u>
Represent and solve problems involving addition and subtraction.

MCC.1.OA.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

MCC.1.OA.2. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

Add and subtract within 20.

MCC1.OA.5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).

<u>**STANDARDS FOR MATHEMATICAL PRACTICE ADDRESSED**</u>

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

<u>**BACKGROUND KNOWLEDGE**</u>

Provide opportunities for students to participate in shared problem-solving activities to solve word problems. Collaborate in small groups to develop problem-solving strategies using a variety of models such as drawings, words, and equations with symbols for the unknown numbers to find the solutions. Additionally students need the opportunity to explain, write and reflect on their problem-solving strategies. The situations for the addition and subtraction story problems should involve sums and differences less than or equal to 20 using the numbers 0 to 20.

<u>**ESSENTIAL QUESTIONS**</u>
- How do you determine a missing addend?
- How can we represent a group of objects with numbers?
- How can we show and explain our thinking?

MATERIALS

- The Wheel Shop Recording Sheet

GROUPING

small group/partners/individual

TASK DESCRIPTION, DEVELOPMENT AND DISCUSSION

PART I

Within the whole group discussion on the rug: (Teacher shows a picture of a bicycle) "What do we call this? How many wheels does a bicycle have? Who can show me how they know there are two wheels? What if I have two bicycles, how many wheels would I have?" Allow students to come up with an answer and share their strategies for determining the number of wheels. Next, the teacher shows a picture of a go-cart. "What do we call this? How many wheels does a go-cart have? What if I had two go-carts?" Allow for responses and discuss the strategies used to determine how many wheels.

PART II

Using drawings, equations, and written responses, students work cooperatively or independently to solve.
The Wheel Shop sells bicycles and go-carts. Each bicycle has only one seat and each go-cart has only one seat. There are a total of 7 seats and 18 wheels in the shop.
How many are bicycles and how many are go-carts?
Explain how you figured it out.

FORMATIVE ASSESSMENT QUESTIONS

- How did you know the number of bicycles? Go-carts?
- What strategy did you use to determine this?
- Can you write an equation/number sentence to show your thinking?
- Is this the only solution? How do you know?

DIFFERENTIATION

Extension

- To extend their thinking include a tricycle. There could be 5 seats and 19 wheels.

Intervention

- Provide students with the amount of bicycles and go-carts, and ask them to determine the number of wheels.

The Wheel Shop

The Wheel Shop sells bicycles and go-carts. Each bicycle has only one seat and each go-cart has only one seat. There are a total of 7 seats and 18 wheels in the shop.

How many are bicycles and how many are go-carts?

Use pictures, words, and numbers to show your math thinking.