

Helping Students Understand Bar and Picture Graphs



Block 3
Elementary Education
Cameron Kearney

3-1





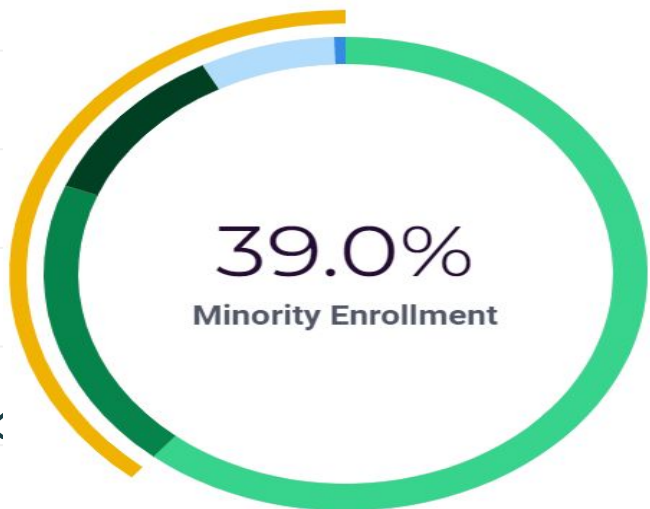
Clarksville Elementary



Second Grade



- Clarksville, IN
- Suburb setting
- 54% economically disadvantaged students
- 59% scored at or above proficient level in math and 44% in reading
- Title I and Title III school



● 39.0% Minority Enrollment

● 61.0% White

● 20.1% Hispanic/Latino

● 11.1% Two or more races

● 7.2% Black or African American

● 0.6% Asian or Asian/Pacific Islander

Native Hawaiian or Other Pacific Islander and American Indian or Alaska Native are not included in this breakdown due to an enrollment of 0%.





Class Data



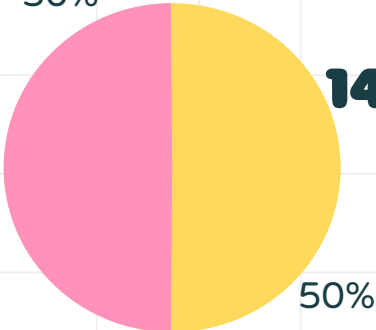
Race\Ethnicity

- 12 White
- 10 Hispanic
- 1 African American
- 5 Two or More Races

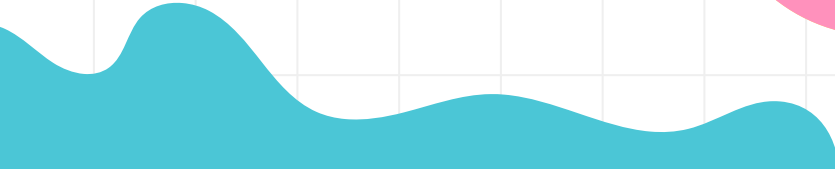
Disabilities

- Speech Impairment
- Orthopedic Impairment
- Learning Disability
- Intellectual Disability
- Developmental Delay
- ADHD

14 Girls



14 Boys





How do I help students master standard 2.DA.1?



Draw a picture graph (with single-unit scale) and a bar graph (with single-unit scale) to represent a data set with up to four choices (What is your favorite color? red, blue, yellow, green). Solve simple put-together, take-apart, and compare problems using information presented in the graphs.



Learning Targets



01

Students will..

draw a picture graph (with single-unit scale) to represent a data set with up to four choices.



02

Students will...

draw a bar graph (with single-unit scale) to represent a data set with up to four choices.

03

Students will...

solve simple put-together, take-apart, and compare problems using information presented in the graphs.



Test Blueprint

1 + 1
★

Learning Targets

Performance Assessment

% Importance

Students will draw a picture graph (with single-unit scale) to represent a data set with up to four choices.

**Question 2
Post-Test**

30%

Students will draw a bar graph (with single-unit scale) to represent a data set with up to four choices.

**Question 1
Post-Test**

30%

Students will solve simple put-together, take-apart, and compare problems using information presented in the graphs.

**Question 3 and
4
Post-Test**

40%



- Pre/Post Assessments
- Digital Assessment
 - Blooket
- Formative Assessments
 - Thumbs up/down
- Summative Assessment
 - Post-Assessment
 - Data Task Cards

Name: _____
Date: _____

1. CREATING BAR GRAPH

Directions: Construct a bar graph using the data below.

| Pets | Number of Pets |
|------|----------------|
| cat | 7 |
| dog | 9 |
| bird | 4 |

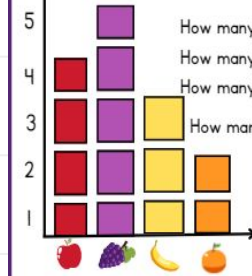


2. Directions: Use the information below to draw a picture graph. Represent the animals with circles.

- There are 7 pigs in the farm.
- The number of pigs and the number of horses are the same.
- There are 2 more horses than sheep.
- There are 25 animals in the farm altogether. So, how many hens are there in the farm?

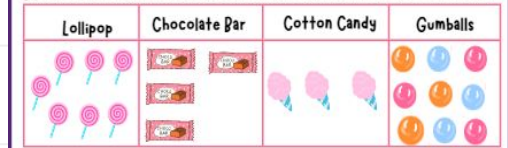
| | | | |
|-----------|---------|-----------|---------|
| | | | |
| sheep | hen | horse | pig |

3. Directions: Look at the bar graph below. Use the graph to answer the questions.



- How many people like apples? _____
 How many people like bananas? _____
 How many people like grapes? _____
 How many people like oranges? _____

4. Directions: Fill in the blanks using the information from the picture graph.



- There are _____ lollipops sold.
- There are _____ gumballs sold.
- There are _____ chocolate bars sold.
- There are _____ cotton candies sold.
- There are _____ sweets sold altogether.
- _____ are the least sold candy.

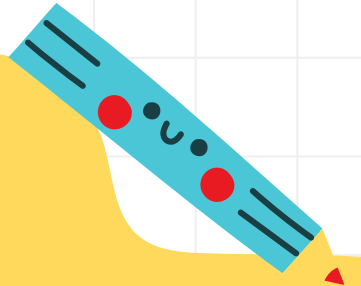
Assessment Methods



Formative Assessment

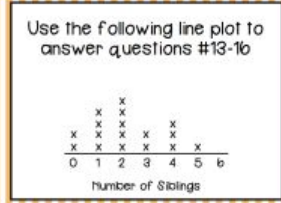
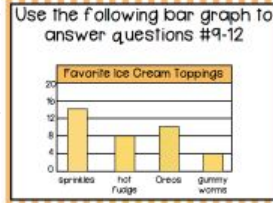
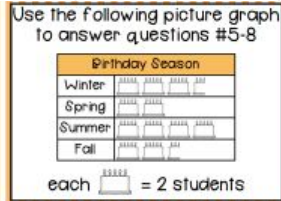
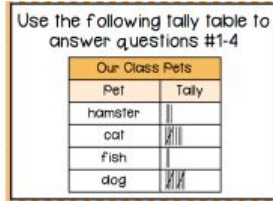


To get a quick check for student understanding, I had the students put their thumbs up, down, or sideways. This was an easy way to check if they were comprehending the information being taught.



Summative Assessment

At the end of the 5 day intervention plan, the students completed the pre assessment again to check how much they have improved. I used the data task card activity sheet, blooket results, and post-assessment results as a check of their mastery.



1 How many more students own a dog than a hamster?

2 Which pet is owned by the least number of students?

3 How many more dogs are owned than fish and hamster combined?

4 If three more cats were added to the table what would the tally marks look like?



Student Self-Assessment

Name: _____ Date: _____

3-2-1 Reflection

| |
|---|
| <p>3 Things I Learned 🌟</p> <p>1. _____</p> <p>2. _____</p> <p>3. _____</p> |
| <p>2 Things I Found Interesting 📖</p> <p>1. _____</p> <p>2. _____</p> |
| <p>1 Question I Still Have ❓</p> <p>1. _____</p> |



At the end of each lesson, students were to complete a self-assessment sheet. The students were able to grade their own work after each day. This would show the teacher what the students mastered, what they enjoyed/didn't enjoy, or what they needed more instruction on.



Accommodations

ELL

- Translated copies of activities and worksheets
- Test read to them
- One-on-one work
- More visuals



Orthopedic Impairment

- Different seating
- Tilted board for writing

Speech Impairment

- Small groups
- Louder voice
- Seat closer to the teacher

ADHD

- Small group to better focus
- Movement breaks
- Fidget devices



Instruction

Standards-based Planning

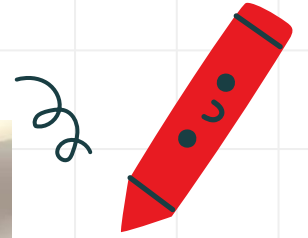
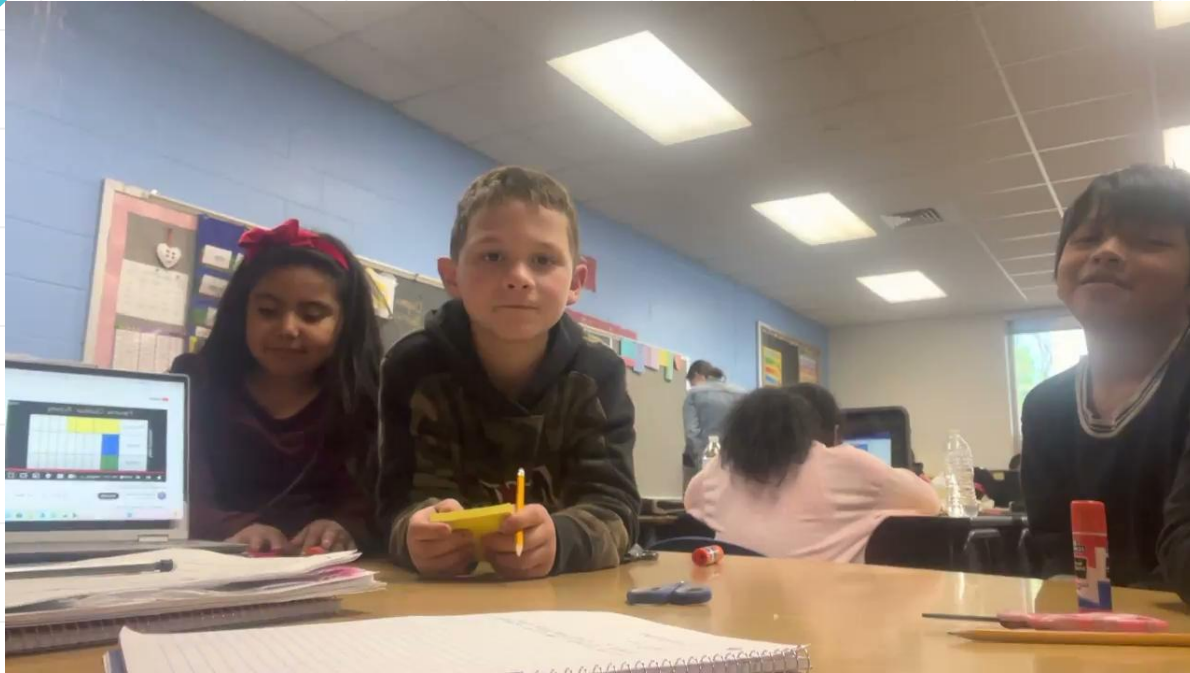
- Select a standard and unpack it, design learning targets, align assessments and instructional strategies to the standards and targets, and use data from assessments to give feedback



After my whole class lesson, I pulled data from the post-assessment to see which students needed interventions on bar and picture graphs. From there, I planned a 5 day intervention plan for the four students who did not meet the mastery level of 6.5/9.



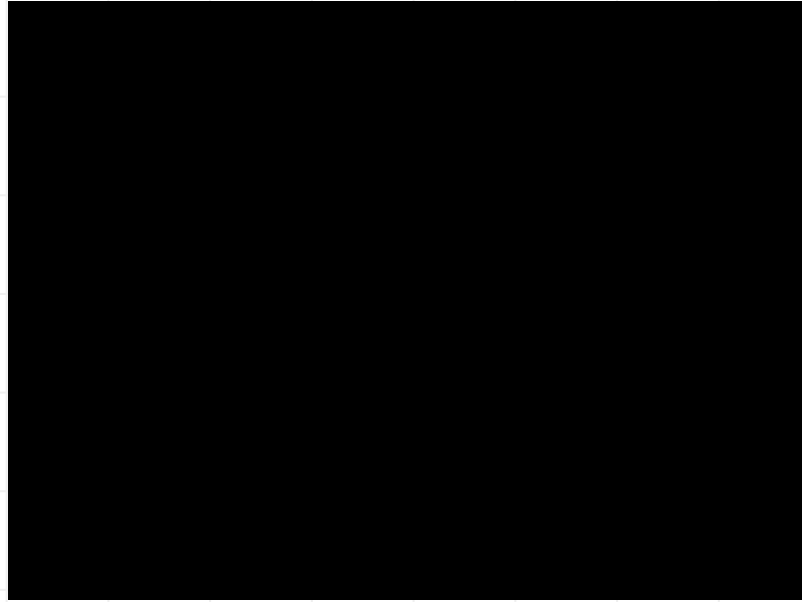
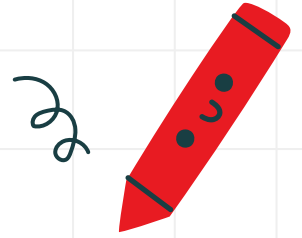
Instruction



This video shows our first day of interventions. We started with review questions to check their understanding on the elements of a bar graph.



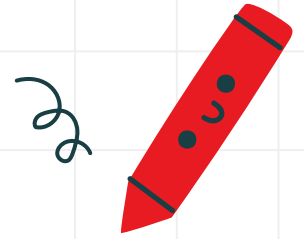
Instruction



This video shows me asking students questions and guiding them through the activity.



Instruction



This video shows us starting an activity with making bar and picture graphs out of our own data set.



Record Keeping



NAME: _____ *Answer key*
 DATE: _____

1. 2pts CREATING BAR GRAPH
 Directions: Construct a bar graph using the data below.

| Pets | Number of Pets |
|------|----------------|
| cat | 7 |
| dog | 9 |
| bird | 4 |

Number of Pets
 Labeled x-axis = 1/2
 Labeled y-axis = 1/2
 Scale = 1/2
 Bars = 1/2

2. Directions: Use the information below to draw a picture graph. Represent the animals with circles. 2pts

- There are 7 pigs in the farm.
- The number of pigs and the number of horses are the same.
- There are 2 more horses than sheep.
- There are 25 animals in the farm altogether. So, how many hens are there in the farm?

5 6 7 7

+1/2pt sheep +1/2pt hen +1/2pt horse +1/2pt pig

3. 2pts the questions.
Favorite Fruits

| | | |
|---|---------|---|
| 5 | ■ | +1/2 How many people like apples? <u>4</u> |
| 4 | ■ ■ | +1/2 How many people like bananas? <u>3</u> |
| 3 | ■ ■ ■ | +1/2 How many people like grapes? <u>5</u> |
| 2 | ■ ■ ■ ■ | +1/2 How many people like oranges? <u>2</u> |
| 1 | ■ ■ ■ ■ | |

+3pts

4. Directions: Fill in the blanks using the information from the picture graph. 3pts

| Lollipop | Chocolate Bar | Cotton Candy | Gumballs |
|----------|---------------|--------------|----------|
| 7 | 4 | 6 | 23 |

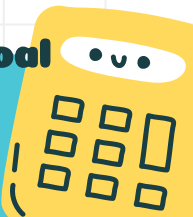
- There are 7 lollipops sold.
- There are 9 gumballs sold.
- There are 4 chocolate bars sold.
- There are 3 cotton candies sold.
- There are 23 sweets sold altogether.
- 6 Cotton Candy are the least sold candy.

| Student (No Names) | Pretest % | Post-test % | Change (+ or -) | Was Goal Met? |
|--------------------|-----------|-------------|-------------------|---------------|
| Student 1 | 83% | 89% | + 6% | Yes |
| Student 2 | 50% | 78% | + 28% | Yes |
| Student 3 | 89% | 100% | +11% | Yes |
| Student 4 | 50% | 89% | + 39% | Yes |
| Student 5 | 44% | 55% | +10 % | No |
| Student 6 | 55% | 83% | + 28% | Yes |
| Student 7 | 83% | 100% | +7% | Yes |
| Student 8 | 50% | 83% | +23 % | Yes |
| Student 9 | 83% | 89% | +6 % | Yes |
| Student | 72% | 100% | + 28% | Yes |

* Answer Key

Student Log

- **Goal: 6.5/9**
- **4 students did not meet the goal**
- **Average scores:**
 - **Pretest-69%**
 - **Posttest-86%**



Record Keeping



1. **CREATING BAR GRAPH**
Directions: Construct a bar graph using the data below.

| Pets | Number of Pets |
|------|----------------|
| cat | 7 |
| dog | 9 |
| bird | 4 |

2. Directions: Use the information below to draw a picture graph.
Represent the animals with circles.

1. There are 7 pigs in the farm.
2. The number of pigs and the number of horses are the same.
3. There are 2 more horses than sheep.
4. There are 25 animals in the farm altogether. So, how many hens are there in the farm?

| | | | |
|--------|-------------|----------|--------|
| 7 pigs | | 7 horses | 7 pigs |
| | x 6 hens | | |
| sheep | hen | | |

Directions: Look at the bar graph below. Use the graph to answer the questions.

Favorite Fruits

How many people like apples? 4
How many people like bananas? 3
How many people like grapes? 5
How many people like oranges? 2

4. Directions: Fill in the blanks using the information from the picture graph.

| Lollipop | Chocolate Bar | Cotton Candy | Gumballs |
|----------|---------------|--------------|----------|
| | | | |

1. There are 7 lollipops sold.
2. There are 4 gumballs sold.
3. There are 4 chocolate bars sold.
4. There are 3 cotton candies sold.

5. There are 22 sweets sold altogether.
~~3~~ 7 are the least sold candy.

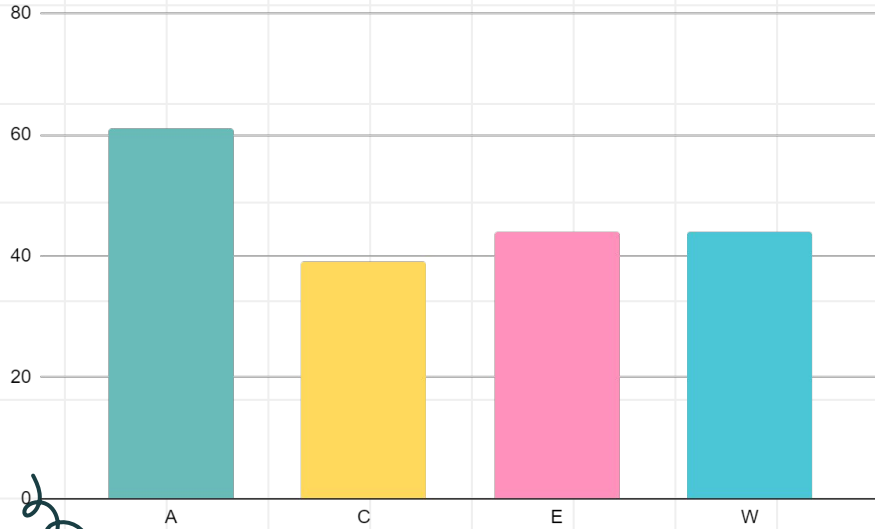


Data Analysis

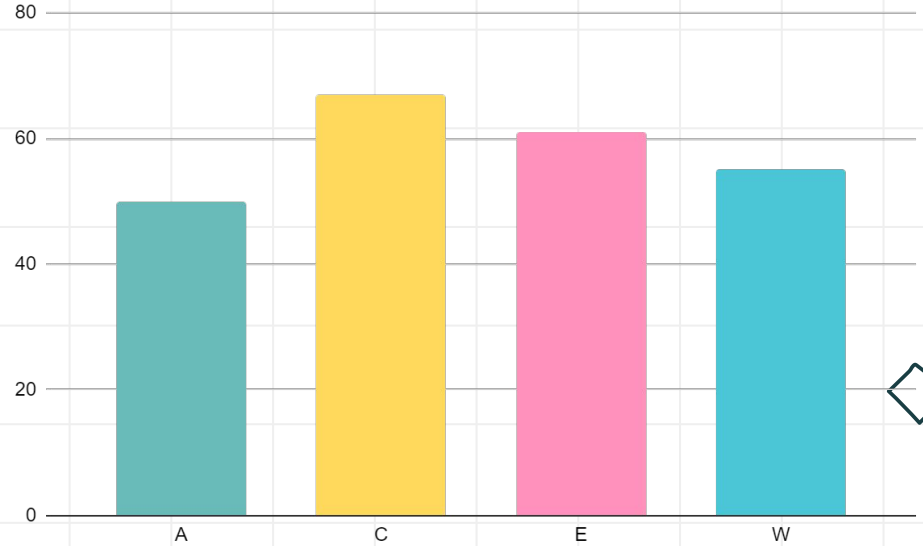


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Pre-Test Data



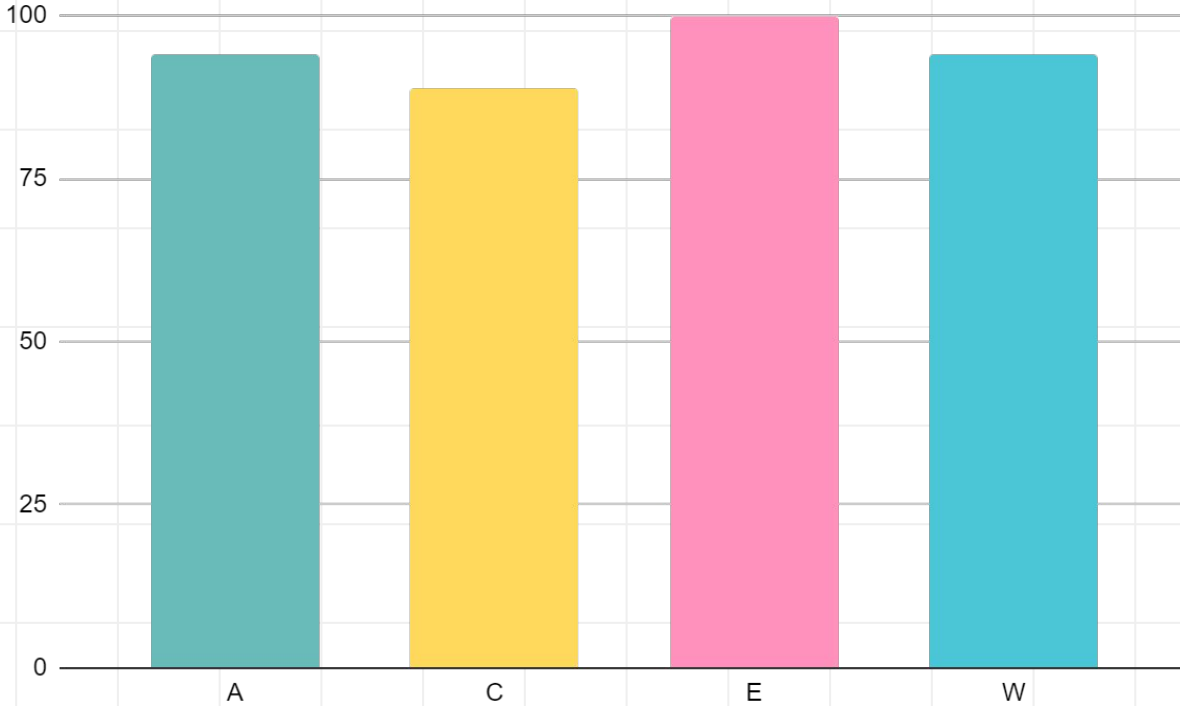
Post-Test Data



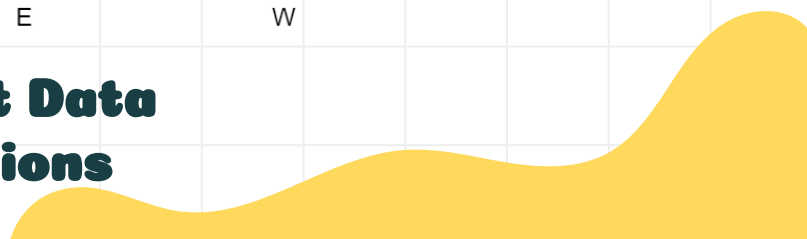
Data Analysis



10



**Post-Assessment Data
After Interventions**



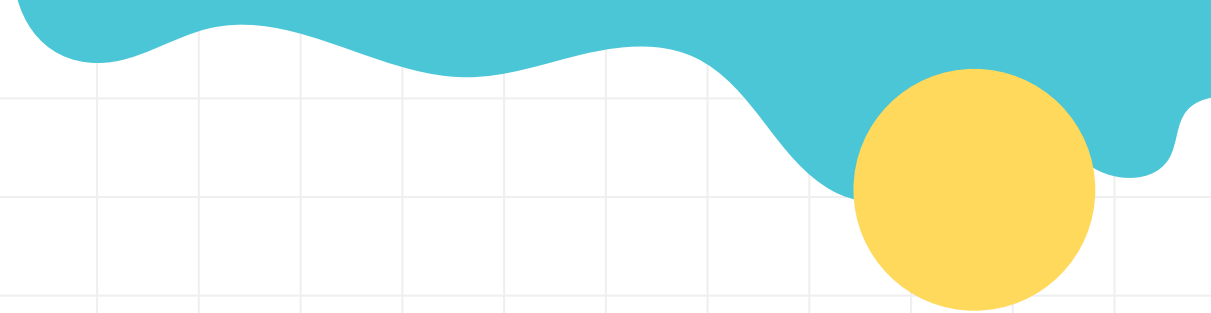
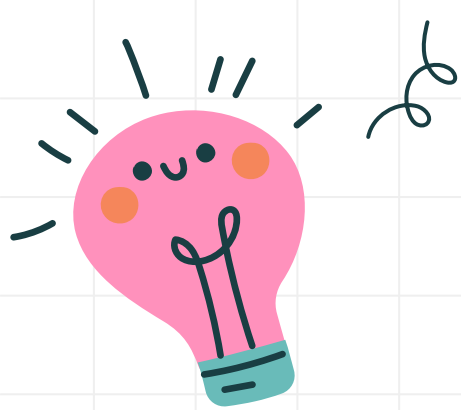
Reflection \ Final Analysis



* 3-2

- ◇ ● Modifications
- 3-2-1 reflection paper was too difficult for grade level
- Students were eager to learn
- Mastered standard 2.DA.1 by showing growth from the pretest and posttest (all by at least 22% on Posttest when the goal was a 10% increase)





THANK YOU!

Questions?

5

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