

# Modifications to Make Challenging Mathematics Accessible for English Learners

Zandra de Araujo & Ji Yeong (Joann) I

TODOS

June 28<sup>th</sup>, 2014

# Welcome!

- **Examine the task on your card**

Baseball stadiums have different numbers of seats. Giants' stadium in San Francisco has 41,915 seats and Nationals' stadium in Washington has 41,888 seats. Padres' stadium in San Diego has 42,445 seats.

Compare these statements from two students.

Jeff said, "I get the same number when I round all three numbers of seats in these stadiums."

Sara said, "When I round them, I get the same number for two of the stadiums but a different number for the other stadium."

Can Jeff and Sara both be correct? Explain how you know.

# Welcome!

- Examine the task on your index card
- **On the back of the card record your ideas on how to modify this task for English learners**

Baseball stadiums have different numbers of seats. Giants' stadium in San Francisco has 41,915 seats and Nationals' stadium in Washington has 41,888 seats. Padres' stadium in San Diego has 42,445 seats.

Compare these statements from two students.

Jeff said, "I get the same number when I round all three numbers of seats in these stadiums."

Sara said, "When I round them, I get the same number for two of the stadiums but a different number for the other stadium."

Can Jeff and Sara both be correct? Explain how you know.

# Getting to Know You...

- **Walk around the room and find someone you do not know.**
  - **Introduce yourself to your partner**
  - **Share the ideas you wrote on your card**

# Getting to Know You...

- Walk around the room and find someone you do not know.
  - Introduce yourself to your partner
  - Share the ideas you wrote on your card
- **Find a second person you do not know.**
  - Introduce yourself to your partner
  - Share the ideas you wrote on your card

# Ideas?

- Return to your original spot.
- With the people around you share any ideas that stood out to you.

- Please go to the following link (it is case sensitive)...

[www.goo.gl/FQc7Yt](http://www.goo.gl/FQc7Yt)

# The Universal Language

- You will work on a set of tasks.
- We will go through several rounds in which we provide various supports for the tasks.
- For each round, your job is to respond to the Google Form
- Feel free to discuss each round with those around you.



# Round 1

- Support: Written Task

수완이와 아버지는 오늘 낚시를 가서 고등어와 꽁치를 잡았습니다. 잡은 물고기를 바구니에 넣어 가지고 오는데 최대 6 킬로그램까지만 담을 수 있다고 합니다. 고등어 한 마리의 무게가 500 그램이고 꽁치 한 마리의 무게가 350 그램이면 바구니에 생선을 각각 몇 개씩 넣어야 할까요?

# Round 2

- Supports: Simplified Version of Written Task Read Aloud

수완이와 아버지는 오늘 고등어와 꽁치를 잡았습니다. 바구니에 생선을 넣는데 6kg보다 많이 넣을 수는 없다고 합니다. 고등어 한 마리가 500g이고 꽁치 한 마리가 350g이면 바구니에 생선을 각각 몇 개씩 넣어야 할까요?

# Round 3

- Supports: Simplified Written Task with Pictures

수완이와 아버지는 오늘 고등어와 꽁치를 잡았습니다. 바구니에 생선을 넣는데 6kg보다 많이 넣을 수는 없다고 합니다. 고등어 한 마리가 500g이고 꽁치 한 마리가 350g이면 바구니에 생선을 각각 몇 개씩 넣어야 할까요?



# Round 4

- Supports: Simplified Written Task with Captioned Pictures

수완이와 아버지는 오늘 고등어와 꽁치를 잡았습니다. 바구니에 생선을 넣는데 6kg보다 많이 넣을 수는 없다고 합니다. 고등어 한 마리가 500g이고 꽁치 한 마리가 350g이면 바구니에 생선을 각각 몇 개씩 넣어야 할까요?



고등어



고등어 1마리=500g



6kg



꽁치



꽁치 1마리=350g

# Round 5

- Supports: Simplified Written Task with Captioned Pictures and Gestures

수완이와 아버지는 오늘 고등어와 꽁치를 잡았습니다. 바구니에 생선을 넣는데 6kg보다 많이 넣을 수는 없다고 합니다. 고등어 한 마리가 500g이고 꽁치 한 마리가 350g이면 바구니에 생선을 각각 몇 개씩 넣어야 할까요?



고등어



고등어 1마리=500g



6kg



꽁치



꽁치 1마리=350g

# Round 6

- Support: Google Translate

Resourceful and father went fishing today and caught a mackerel and saury. Have caught the fish coming into the basket can hold up to 6 kg that only the One of mackerel pike weighing 500 grams and 350 grams, the weight of one fish for each basket you want to put a few results?

# Reflection

# Translated Task

Suwan and his father went fishing today. They caught mackerels and sauries. They want to put the fish into baskets. Each basket can hold 6kg. A mackeral weighs 500g and a saury weighs 350g. How many of each type of fish could fill a basket?



# Debriefing the Activity

- Which round and strategy helped you understand the problem? Which one do you think was most effective?
- Did you expect the result? How was it different from your expectation?
- What are some other ways you could support ELLs in this task?
- Compare what you just experienced with your modification ideas for the first task. Do you want to change some of your ideas now?

Adapted from Carl Lager's Huertos de Manzanas

# Your Turn to Try

- Working with those around you and drawing on the experience you just had, rewrite or present your task for English learners.

Baseball stadiums have different numbers of seats. Giants' stadium in San Francisco has 41,915 seats and Nationals' stadium in Washington has 41,888 seats. Padres' stadium in San Diego has 42,445 seats.

Compare these statements from two students.

Jeff said, "I get the same number when I round all three numbers of seats in these stadiums."

Sara said, "When I round them, I get the same number for two of the stadiums but a different number for the other stadium."

Can Jeff and Sara both be correct? Explain how you know.

# Thank You for Coming!

For a copy of this presentation and our task go to  
[www.goo.gl/aiWrwH](http://www.goo.gl/aiWrwH)

We would love to hear your thoughts!  
Please feel free to contact us with any questions or  
comments.

Zandra de Araujo ([dearaujoz@missouri.edu](mailto:dearaujoz@missouri.edu))

Ji Yeong (Joann) I ([jihtc@mail.missouri.edu](mailto:jihtc@mail.missouri.edu))