



Housing Our Community



Photo by Marcus Lenk via www.unsplash.com

Grade Level Focus:

- K-2

Content Standard:

- [CCSS.MATH.CONTENT.K.CC.C.6](#)

Mathematical Practice:

- SMP1 - Make sense of problems and persevere in solving them.
- SMP2 - Reason abstractly and quantitatively.
- SMP4 - Model with mathematics.

Domain Focus:

- Measurement and data

Overview

The purpose of this 3 ACT task is to provide students with an opportunity to problem solve based on a real-world situation (Claims 2 & 4). Due to the nature of the task, there are a variety of mathematical approaches students can take to successfully complete the task. The mathematical approach presented in Act Three of the task addresses CCSS Domain of Measurement and data. With this approach, students are shown different strategies for using problem solving strategies for counting and comparing numbers within 20. This performance task is intended for students at all proficiency levels to access the problem and reach a solution. This performance task is intended for students with prior knowledge of subitizing with numbers in base ten and some experience comparing two numbers. It would serve well as an assessment tool at the end of a unit.

The task is modeled after the [3 ACT Fill 'Er Up by Graham Fletcher](#). In the task, students are presented with images of homes and people and are asked to compare the number of homes to the number of people. Students then decide on necessary resources for comparing these pieces of information. The task concludes by having students examine the information provided in Act Three to see if it answers their questions. Student discussion will lead to concrete evidence for affordable housing issues in their community.

Teaching Tip: This task deals with the issue of affordable housing and may be triggering for students without permanent housing. Please be aware of your student population and their social and emotional needs. Students will be participating in discourse through the performance task; it would be pertinent to coach students in these more sensitive conversations prior to implementing this performance task.

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K-2 Math Performance Task: Housing Our Community

Grade Band:

- K-2

Content Standard:

- [CCSS.MATH.CONTENT.K.CC.C.6](#)

Mathematical Practices:

- SMP1 - Problem Solving “Students can solve a range of complex well posed problems in pure and applied mathematics, making productive use of knowledge and problem-solving strategies.”
- SMP2 - Reasoning “Students make sense of quantities and their relationships in problem situations.”
- SMP4 - Modeling and Data Analysis “Students can analyze complex, real-world scenarios and can construct and use mathematical models to interpret and solve problems.”

Domain Focus:

- Measurement and data

Student Targets:

- I can organize and represent data.
- I can count and compare numbers of objects.

Overview of task with standard addressed specified

The purpose of this task is to give students the opportunity to use mathematics in real-world applications. In this task, students are introduced to the ongoing problem of affordable housing faced by community builders and city and state planners nationwide. Students are presented with a collection of representations of homes and people. Students discuss questions we can ask and answer using this data. They will use strategies to organize information and discover how many more people are there than homes ([CCSS.MATH.CONTENT.K.CC.C.6](#)).

Learning Goal Statement

- Students will solve a range of complex well-posed problems in applied mathematics (SMP1).
- Students will solve a complex problem by making productive use of knowledge and problem-solving strategies (SMP2).
- Students will analyze complex, real-world scenarios (SMP4).

Success Criteria

- I can organize and represent data.
- I can count and compare numbers of objects.



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Step By Step:

1. Materials

- Recording sheet, scratch paper, whiteboards, math journal (if applicable) for each group
- Technology to show PowerPoint
- Student worksheet, notebooks, and manipulatives, such as counters, base 10 blocks or cubes

2. Pre-Planning

- This lesson will include productive discussion that will open opportunities for multiple approaches to a solution. Prepare for this by making predictions about what students will come up with based on previous instruction or demonstrated knowledge.
- Decide how you would like to present students with the homes and people data (i.e., using just the slide vs. the student worksheet, having the homes and people cut into individual pieces, etc.).
- Prepare access to materials such as crayons, pencils, or counters for use as needed through the task.
- This lesson will include productive discussion that will open opportunities for multiple possible questions and math concepts. Students may need scaffolded supports or routines for productive discussions.
- Prepare access to materials such as scratch paper, math manipulatives, and other materials as you see fit for use as needed through the task.

3. Act 1 Introduction

- Read the learning goals aloud. Use the Think-Pair-Share strategy to have students respond to the prompt: “What connections or questions come to mind in relation to these learning goals?”
- Read PEI’s Career Profile Card “Housing Developer” and ReadWorks article on homelessness ([Maggie and the Mission](#)) to introduce the topic of affordable housing. This could be done during ELA and then carried over to math.
 - Note: ReadWorks is a completely free web-platform, but educators do need to sign up for an account to access the articles.
 - Alternatively (or additionally), there is a related picture book “Mi Casa is My Home,” by Laurenne Sala (Author) and Zara González Hoang (Illustrator). You can find a read-aloud on YouTube at [Mi Casa Is My Home](#).
- Ask students to Think-Pair-Share to answer the following questions: “What are some things you notice about the different kinds of homes in your town? What are some problems cities might have with housing?”
- If possible, take a walk with clipboards and scratch paper around the school building or where you can see neighborhoods. Ask, “What are some problems Housing Developers might see in our neighborhood?”
- Show the slide “What do you notice and wonder?” with all the homes and people. Tell students this slide is connected to a big problem housing developers face in cities and small towns.



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- What do they notice about the images on this slide? What questions do they have? Remind students to use sentences like, “I notice, I see, I wonder, I want to ask...” Help record this on a classroom “Notice and Wonder” chart.
- Ask students what kind of math questions they can answer from this picture. What can we do with all these homes and people?
- Allow time for students to come to a consensus about one question generated from the group ideas. Instruct students to analyze the questions generated to determine what information is needed to answer them.
- Show students the slide “Housing developers need your counting skills!” with the housing developer questions. Tell students they are going to be housing developers today who need to answer the following questions:
 - How many homes are available to live in?
 - How many people need homes to live in?
 - How many more people are there than homes?
- Student generated questions may be similar versions of these questions. Discuss how the student generated questions are similar to or different from the housing developers’ questions and celebrate that they are thinking like housing developers! Students are welcome to choose to answer their own or the provided housing developers’ questions but are encouraged to pursue their own generated questions as long as they stay connected to the facts provided.
- After students have chosen which questions they would like to answer, prompt students to generate predictions for answers and post where visible to the class. These can be estimations; no calculation is required.

Teaching Tip: One of the greatest strengths of performance tasks are the ease with which they can be differentiated. Managing multiple student groups following different lines of questions and answers can be challenging! You can instead come to a classroom consensus of questions to answer in Act 2, choosing student generated questions or the housing developers’ questions provided.

4. Act 2 Conflict

- Ask students, “Do you have everything you need to solve your problem?” Give students time to create a list of materials they will need.
- Give students prompting and guidance to allow them to come up with the idea of counting and organizing the pictures into groups.
- Show how the slide “Helpful Information and Tools” and the Information Card provide examples of various strategies for counting and comparing numbers. Show students where to find this information.
- Show students the strategies they have learned for counting.
- Students can use the worksheet, math notebooks, whiteboard, or manipulatives to organize the data.
- Using the worksheet, students can cut out groups of homes and people to line them up on their desks and count them. Alternately, students can assign one color block for homes and a different color block



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for people and place them on the worksheet. Students could cross out as they count, or use counters or coins, or any combination of manipulatives that will help support their problem solving.

- Instruct student groups to record their thinking and math work on the recording sheet and other materials as needed. Inform students that this work will be collected as evidence of their learning. Consider using Flip, Seesaw, or other technology to record student explanations.
- As students are working, be sure to ask questions about their thinking. You may choose to use the Discussion Rubric. Take note of different strategies students are using.
- Choose at least three (3) students to share their strategies with the class during ACT 3. Make sure the strategies demonstrate math learning that align with learning goals.
- When student groups agree on an answer, instruct groups to answer Question 3 (“How many more...”) of their group recording sheets.
- Remind students of access to sentence frames on the Information Card for complete responses.
- Students can work with a partner to answer the questions using their sentence stems.

5. Act 3 Resolution

- Display the “Share your strategy” slides. Allow at least three (3) students to share their group’s answers with a complete description of how they completed the task. Remind students of access to discussion frames for complete responses.
- Ask questions that allow students to make connections between the different answer statements to the learning goal. For example: How were these approaches similar/different?
- Display the “Resolution” slide that provides answers to the questions from your initial prediction.
- Ask students to rate their learning of the learning goals on a scale of 0-10 (0 being you made no connection to the learning goals, 10 being you could teach this content) and record what they learned.

Accessibility Strategies Used

- Scratch paper or white boards: Students can use blank paper to record thinking, complete calculation, create diagrams, etc.
- Manipulatives: Students can use any math manipulatives (such as place value charts, base-ten blocks, cubes, counters, etc.) to support their problem solving.
- Small group collaborative work: Students are working with peers to solve problems and explore their thinking.

Things to Consider

- The lesson can take different turns depending on the questions generated. Use this as an opportunity to reteach or extend different math concepts.
- There is opportunity for differentiation with intentional grouping of students by skill level; however, this is not essential for students to meet the learning targets.
- The lesson can be split into two days where students create and find solutions to their questions on the first day and share their responses and discuss solutions on the second day.



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Formative Assessment Process

- Clarify learning targets throughout the lesson. This is specifically done at the beginning and end but is helpful at any point to further students' learning.
- Evidence of student learning is found in multiple areas of the lesson. The Group Recording Sheet and individual responses are concrete options. Teacher observations, student questions, and student discussion provide additional evidence of students meeting learning targets.
- Use observations of student thinking and other evidence as an opportunity for purposeful discussions around the math concepts. These can be opportunities to reteach or extend learning of math concepts.
- Feedback based on evidence of student learning should be provided to students throughout the lesson. This can happen as the teacher circulates the room, during class discussion, or on group or individual response sheets.

Strategies Used: In-depth look at teaching strategies used in the lesson

- 3 ACT Task
 - This is a whole-group task made up of three parts: Act 1 is an engaging situation that piques students' curiosity. Act 2 is where students seek information and work toward a solution, and Act 3 finishes the task by discussing solutions and tying the work back to the learning targets.
- Think-Pair-Share
 - With this strategy, students are given the opportunity to examine a prompt as an individual, then with a partner or small group, and finally by sharing and listening to responses among the whole class.
- Notice/Wonder
 - This strategy allows students to unpack a problem or prompt before beginning to solve the problem or respond to the prompt. The purpose is to create a common experience and provide access for all students in an environment where students share their thoughts freely because there is no expectation to find the answer.

Extensions and Connections learned from teacher implementation

- Connection to Social Studies content: WA State K-12 Learning Standards for Social Studies include building civic awareness and fostering civic responsibility. An extension activity for this task focusing on civic mindedness would be to look at how community helpers solve problems like housing shortages all throughout our communities. Students can research and help make a list of all the different kinds of jobs it would take to find a solution to the housing shortage. Construction workers, city planners, land developers, politicians, and regular citizens are all some jobs students can explore. The following link is a lesson by Kid Citizen on community helpers:
 - [Community Helpers — KidCitizen](#)
- Other connections:
 - [Washington State K–12 Learning Standards for Social Studies](#)
 - [Elementary Integration — Washington State Council for the Social Studies](#)
 - [Interdisciplinary Lessons: Civics for All](#)



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Samples of Student Work

Coming soon.



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Discussion Rubric

Use this rubric during ACT 2 while students are actively trying to solve the problem or answer the question. Listening to student discussion will give you insight about their skills in contributing to productive conversation, ability to communicate disagreement, and their ability to work through conflict. This may also help to identify any skill deficits, misconceptions, or areas that require extra support or reteaching.

Rubric Components	Point Scale			Student Score and Rationale
	3	2	1	
Speaking	Students use sentence stems to share their ideas about how to solve the problem. Discussion is on task and focused on responding to the prompt.	Students need a few reminders and teacher modeling to use sentence stems when sharing ideas. Students are able to engage in discussion with a little prompting and support.	Students are not able to share ideas or are speaking off topic. Teacher support and scaffolding is still needed.	
Listening	Students listen when others are speaking and respond appropriately to each other when agreeing or disagreeing. Students use active listening strategies and are engaged in listening to each other.	Students mostly listen to each other and respond appropriately with some teacher prompting and support. May still need a few reminders of how to be a good listener.	Students are not able to listen to each other's ideas. Student body language is disengaged and off task while others are talking.	



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Formative Assessment Rubric

Rubric Components	Point Scale			Student Score and Rationale
	3	2	1	
I can organize and represent data.	Student uses a counting on strategy and/or model such as cubes or base ten blocks to organize and represent the number of homes and the number of people. Student uses their model to count and write the number of each.	Student accurately represents at least one of the data points using a model. Student has values or a model that shows more people than homes.	Student is not able to organize or represent the data presented or needs significant teacher modeling and support.	
I can count and compare numbers of objects.	Student uses models to compare the number of homes to the number of people. Students are able to identify and count the difference between the two values using either their model or another counting strategy.	Student can identify there are more people than homes, though the exact difference might be inaccurate.	Student does not accurately conclude that there are more people than homes.	



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Presentation Materials - PowerPoint Slides

What's the Problem?

How many houses do we need?

3 ACT MATH TASK
Kindergarten-2nd

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1

Learning Goals:

- ★ Students will solve a range of complex well-posed problems in applied mathematics (SMP1).
- ★ Students will solve a complex problem by making productive use of knowledge and problem-solving strategies (SMP2).
- ★ Students will analyze complex, real-world scenarios (SMP4).

Success Criteria:

- ★ I can make sense of problems and persevere in solving them. (SMP1)
- ★ I can explain what a value represents in my solution. (SMP2)
- ★ I can use mathematics to solve and discuss real world problems. (SMP4)

2

What do you notice and wonder?

When you walk around your community, observe the types of homes people live in. How many cars do you notice parked in front of the living spaces? Can you estimate how many adults live in the home?

Image from Pixabay: <https://pixabay.com/illustrations/houses-clip-art-road-trees-4918734/>

3

What do you notice and wonder?

Empty homes in the city:

People who need homes in the city:

4



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What do you notice and wonder?

I noticed...		I am wondering...	

5

What kinds of math questions can we answer with this picture?

Empty homes in the city: 

People who need homes in the city: 

6

Housing developers need your counting skills!

- ★ How many homes are available to live in?
- ★ How many people need homes to live in?
- ★ How many more people are there than homes?

7

What do you need to solve this problem?

- ★ Relevant data
- ★ Strategies for finding “How many more?”
- ★ Strategies for comparing numbers
- ★ Materials and supplies

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Helpful Information and Tools

★ Count out loud



1, 2, 3,
4...

★ Line up and count



★ Counting on



★ Recount!

★ Touch and count



9

Share your strategy

Discussion sentence frames

★ How many homes are there?

○ I see _____ homes.

★ How do you know?

○ I see _____ homes in the (first, second, third, fourth) row.

○ I can move the homes into groups of _____ and use skip counting.

○ I can line up the homes and count each one.



10

Share your strategy

Discussion sentence frames

★ How many people are there?

○ I see _____ people.

★ How do you know?

○ I can move the people into groups of _____ and use skip counting.

○ I can line up the people and count each one.



11

Resolution

How many more people are there than homes?



12



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Self Reflection

What did you learn today?

*Score yourself from 1-10 on each **success criteria**. A score of 10 means "I know it so well, I could teach someone else."*

- I can organize and represent data.
- I can count and compare numbers of objects.



13



Recording Sheet

Name: _____

How Many Homes?

Help the housing developers answer these questions:

1. How many available homes are there?

There are _____ homes.

2. How many people need homes to live in?

There are _____ people.

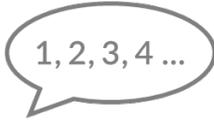
3. How many more people are there than homes?

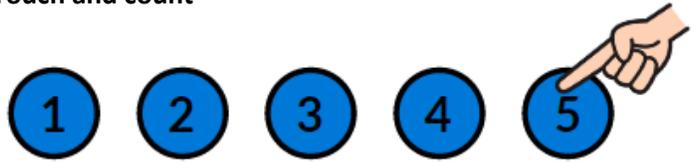


Information Card

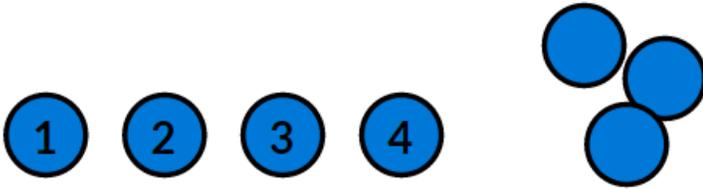
Count out loud



Touch and count



Line up and count



Counting on



Recount!

The strategy I used was _____ because _____.

My strategy is like yours because _____.

I used a different strategy because _____.

Can you explain your thinking?

I disagree with the solution because _____.

This answer makes the most sense because _____.



Additional Resources

Career Connections

Isabel Garcia's career profile card can also be found on the PEI website at <https://pacificeducationinstitute.org/wp-content/uploads/2020/10/CPC-Misc-Isabel-Garcia.pdf>.

Community Building

At Latino legislative day in Olympia

TYPE OF WORK

Perform all aspects of affordable housing development process to obtain capital construction funding for low income and farmworker housing in rural communities.

Isabel Garcia
Housing Developer
The Office of Rural and Farmworker Housing

Housing Developer

TYPICAL DAY: A typical day at work could include researching, collecting and analyzing data to determine low income and farmworker housing needs in selected communities. I complete a land search, determine ownership availability, value and features of property. I collaborate with architects, engineers, contractors, lenders, housing sponsors and public representatives on issues and challenges related to proposed housing developments. Conduct all parts of building from a feasibility analysis to securing funds through compliance monitoring and project reporting.

CAREER PATHWAY: I wanted a fulfilling career, not just a job. I wanted to help others in my community and have a meaningful purpose in life. I left my job as a Court Clerk to manage a multi-family apartment development. I fell in love with affordable housing work. I was promoted to single family housing specialist and within a year, to manager and built over 150 homes in an 11 year span. In 2016, I accepted the Executive Director role for Yakima Valley Partners Habitat for Humanity. In 2019, I transitioned to my current role working on six multi-family housing developments serving families that need affordable homes.

IMPORTANT SKILLS

2 years' experience in planning, housing development laws, construction or related field. Experience working with nonprofits, public agencies and with community.

EDUCATION

Associate's Degree
Housing & Community Development Certificate
Housing Development Finance Professional Certificate

SALARY RANGE

\$50,000-\$74,999

TOOLS OF THE TRADE

cell phone, lap top, a monitor headset, mouse and stand up desk.

One of Isabel's affordable housing projects

"I love going to work every day because I know the people we serve have hopes and dreams and an affordable home will provide them the platform and strong foundation for them to fulfill their dreams." - Isabel Garcia

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Community Resources Connection

You can find county and city-level statistics about housing and income in your county by visiting the Washington State Office of Financial Management webpage at <https://ofm.wa.gov/washington-data-research/county-and-city-data>.