

Bachelor of Education (Elementary) & Bachelor of Education (Secondary) STEM Lesson Plan

6 (End of a
unit) (1 out of
3 lessons)

Lesson Title: Place Value Math Stations **Lesson #** with stations **Date:** January 23 2023

Name: Sahara Lafferty **Subject:** Math **Grade(s):** 5

Rationale:

This lesson is important because it helps the students develop skills and processes that they can use to critically analyze information and work on their flexibility and fluency with larger multi-digit numbers. Working collectively in a small group, using their individual understandings of numbers and coming up with a common purpose is an important skill for students to learn. This lesson is meant to be taught at the end of the unit as review.

Core Competencies:

Communication	Thinking	Personal & Social
Communication <ul style="list-style-type: none"> Connecting and engaging with others Collaboration: <ul style="list-style-type: none"> Working collectively Students will work and engage with multiple other students in more than one conversation Supporting group interactions Students engage with others and value diverse perspectives. They will integrate the ideas of others and their own to tackle the task, issues and problems. common purposes Students develop a shared understanding of the information and will work in groups to come up with a common purpose/answer. 	Critical and Reflective Thinking <ul style="list-style-type: none"> Students will examine their own thinking and that of others. Students will make judgements based on reasoning, where students consider options, analyze options using specific criteria, and draw conclusions 	Social Awareness & Responsibility <ul style="list-style-type: none"> Students focus on interacting with others in a respectful and caring way. Resolving Problems If a problem arises students will show empathy, disagree respectfully and create space for others to use their voices.

Big Ideas (Understand)

- Computational fluency and flexibility with numbers extend to operations with larger (multi-digit) numbers.

Learning Standards

(DO)	(KNOW)
Learning Standards - Curricular Competencies	Learning Standards - Content
Reasoning and Analyzing	<ul style="list-style-type: none"> Students are expected to know number concepts to

<ul style="list-style-type: none"> Students will model mathematics in contextualized experiences <p>Understanding and solving</p> <ul style="list-style-type: none"> Students will develop, demonstrate and apply mathematical understanding through play, inquiry and problem solving. Students will develop and use multiple strategies to engage in problem solving <p>Communicating and Representing</p> <ul style="list-style-type: none"> Students will communicate mathematical thinking in many ways Students will use mathematical vocabulary and language to contribute to mathematical discussions <p>Connecting and Reflecting</p> <ul style="list-style-type: none"> Students will reflect on mathematical thinking 	<p>1 000 000</p> <ul style="list-style-type: none"> Students are expected to know decimals to thousandths Students are expected to know addition and subtraction of whole numbers to 1 000 000 Students are expected to know addition and subtraction of decimals to thousandths
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Instructional Objectives & Assessment

Instructional Objectives (students will be able to...)	Assessment
<ul style="list-style-type: none"> Students will work collaboratively through the stations and model their understanding of what is being asked. Students will use their mathematical understanding of the concept through play and problem solving in a fun way. Students will work with group members to discuss multiple ways to problem solve to come up with a common answer. Students will explain their mathematical thinking and their interpretation of the question to their group members while also considering the different perspectives and understandings of others Students will use proper mathematical vocabulary while working in groups. Students will reflect on their mathematical strategy and thinking when filling out the worksheet and discussing with others. 	<ul style="list-style-type: none"> Students will show their understanding of the mathematical concepts presented and their problem-solving strategies in the worksheet they fill out at each station. Students will hand in their station worksheet at the end of class. Students will be assessed as they work through the stations collaboratively through their participation and the worksheet and they will be assessed individually at the station with the teacher. Students will eventually get to the station that they work one on one with the teacher to show their understanding of the concepts. Teacher will assess whether students are using or thinking about a variety of different strategies or if they always use the same strategies. <ul style="list-style-type: none"> - What strategies do you use to find these answers? Why and how? - What will happen if you change the numbers? - Can you make the biggest number possible with the same numbers? - What other problems have we done that are similar to this? - What was the hardest part of this activity? - Can you put this question into your own words?

Prerequisite Concepts and Skills:

<ul style="list-style-type: none"> Students need to have prior experience working in groups/stations respectfully Students need to have a good understanding of place value Students need to know how to use dice
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- Students will need to have prior experience with place value number talks
- Students have to know 5,4,3,2,1 expectation
- Students have to know “FREEZE” expectations
- Students will have to understand when the teacher asks them how much more time they need that they have to either put up 3,2,1 finger or a fist depending on how many more minutes they need to finish.
- Students must know how to listen quietly and respectfully to the speaker
- Students must know how to log into their prodigy account (if they finish early)

Indigenous Connections/ First Peoples Principles of Learning:

- Learning involves patience and time

Collaboration requires that all people in a group contribute according to their specific skill sets or “gifts”. Through collaboration group members also learn from each other. Collaboration requires skilled negotiation, a process that requires patience and time, and encourages people to listen to and to understand differing perspectives.

Universal Design for Learning (UDL):

Engagement:

- This lesson is designed to engage auditory learners as the teacher reads out what is expected throughout this lesson. This lesson is also meant to engage all learners through their personal interest.

Representation:

- It is also designed to engage visual learners by having a visual hook/video to refresh their memory about place value and everything we have been working on for the last few weeks.
- Students have the option to present their learning through writing, orally, or on the computer.

Action and expression:

- This lesson is also designed to engage the kinesthetic learners by allowing collaboration with other students and movement around the classroom.
- This lesson also engages kinesthetic learners by providing the use of manipulatives.

Differentiate Instruction (DI):

- Whole class explanation of each station before groups split up
- Testing in a variety of ways (the worksheets, orally with the teacher or on the computer – students’ choice) *scribe available if needed* Students are able to record their answers on paper, orally or digitally.
- Extra time available if needed
- The groups are split up in a specific matter to have the group of students that need extra help understanding to content with the teacher and the other groups based on skill level.
- The student with autism will have his support teacher with him as a scribe and to answer any questions he has. He will still interact in the group with the other students as normal though. He can leave at any point with his support teacher and service dog if he gets over stimulated (we’ve been working on emotion regulation and working with his service dog)
- The worksheets are all printed in white and pink (one student needs everything to be printed in color to be able to read it) and also available on the computer as well.
- Students that understand this content very well and are strong in math will be encouraged to come up with the biggest possible number and the students that need some more time to understand the content will spend some more time with the teacher and work on the worksheet normally.

Materials and Resources

Teacher:

- “Find the Imposter worksheets” (20)
- Place Value Yahtzee Score card (20)

- Empty Place Value Yahtzee score card (10-students that finish early and are looking for a challenge they can come up with their own score card)
- “Decimal Battleship” worksheets (20)
- Extra pencil crayons and markers
- Chrome books (early finishers – prodigy or as a way to record their findings)
- Prodigy sign in sheet in case someone forgets their log in info
- 10 blocks and counters
- Dice box

Students:

- Personal pencil case

Lesson Activities:

Teacher Activities	Student Activities	Time
<p>Hook:</p> <p>https://www.youtube.com/watch?v=G1BLq9HWbPo</p> <p>Teacher will play this cheesy video (grade 5’s love cheesy videos) as a quick hook/review about their place value unit they have been working on.</p>	<ul style="list-style-type: none"> • Students will come in from recess and settle into their seats respectfully • Students will watch the place value video at their desk as review. 	5 minutes
<p>Introduction:</p> <ul style="list-style-type: none"> • Teacher will explain to the class that they will be doing stations and that they know the rules and expectations of stations because this isn’t their first one. • Teacher will go through each activity explaining to the whole class together what each station is and what needs to be done. • Teacher will remind students that they each need their pencil case for the stations. • Teacher will then put up the station groups on the board. • Before letting the students go to their stations the teacher will remind them all to be respectful and mature in their stations. • Teacher will remind them that early finishers can log into their chrome book and play prodigy once they hand in their worksheet from their station. • **Early finishers can also make their own Yahtzee score card and try it out with their friends that are also finished. Empty ones available at the Yahtzee station. ** • Teacher reminds students they have the option to record their answers on the worksheet or grab a computer to orally record their answers or digitally. There is a copy of each of these worksheets in the class google drive. 	<ul style="list-style-type: none"> • Students will listen to the instructions of the teacher respectfully • Students will raise their hands if they have any questions. 	10 minutes
<p>Body: The Stations</p> <ul style="list-style-type: none"> • Each station has a set of instructions at it in case students are visual learners and need to read the instructions. 	<ul style="list-style-type: none"> • Students will find their station and begin to work together to come up with common themes. 	25 minutes

<ul style="list-style-type: none"> • These stations are picked by the teacher to accommodate to the students in the class. Each group is based on where they are at based on their understanding of place value. That being said they are all great worksheets for every student to practice and every student will get a chance to do them all in the next few classes as we rotate. - Find the Imposter (Easier) - Place Value Yahtzee (Medium) - Decimal Battleship (Harder) - With Ms. Lafferty (Review work to get everyone on the same page and understanding of the content) • Teacher will set a 25-minute visual timer for the students. • Teacher will walk around the room once in a while to make sure students are on track with their work. 	<ul style="list-style-type: none"> • Students will collaborate respectfully with their peers about the different strategies and answers they come up with. • If students have a question they can ask a friend, check their notes, then come see the teacher for help. • If they finish early the students will bring their completed worksheet to the teacher and log in to their chrome books. • ***If the student needs a chrome book to record their answers orally or digitally that is okay*** • Students are aware of the visual timer and how much time they have left 	
<p>Closure:</p> <ul style="list-style-type: none"> • 5 minutes before the timer goes off, the teacher will give the class a warning to wrap up what they are currently working on to avoid rushing towards the end. • Teacher will remind them that they can continue to work on its next class if they don't finish it today. • Once the 5-minute timer is up teacher will get the class to clean up their stations and sit at their desk quietly. • Once the class is quiet teacher will get the students to tell their elbow partner one thing they liked about today's stations and if they learned anything new. • Teacher will give the class the option to share what they liked and learned today by raising their hands. • Teacher will remind them that next class the stations will rotate and if the student needs extra time that there will be time to do so. Reminds them that this is review one the place value unit we just finished. • Teacher will dismiss the students for lunch. 	<ul style="list-style-type: none"> • Students will wrap up what they were working on. • Students will clean up their station and sit at their desks quietly. • Students will share with their elbow partner what they learned today or something they liked about the station activity. • If students would like to share with the class they raise their hands and wait respectfully to be called upon. • Students wait to be dismissed for lunch • Students get ready for their lunch. 	5 minutes

Organizational Strategies:

- **Students will finish their snack and go outside for recess to release some energy before the lesson**
- **Students can use their chrome books to play prodigy if they finish early**
- **Worksheets will be handed out after the explanation to avoid distractions**
- **Students can use the "wiggle" chairs if they are antsy**

- All students/groups will work within the classroom (not in the hallway) to help them stay on track and so the teacher can keep an eye on the groups

Proactive, Positive Classroom Learning Environment Strategies:

- Teacher will use 5,4,3,2,1 to get the students attentions
- Teacher will put their hands in the and say “freeze” to get the students to freeze and listen if needed
- Teacher will encourage collaboration
- Teacher will say “I’m going to ask you how much time you need and if you need 3 more minutes you are going to hold up 3 fingers, 2 more minutes you hold up 2 fingers, 1 more minute I want you to hold up 1 finger and if you are done I want you to hold up a fist.” To see how much more time the class may need.
- Classroom assistant will help out the student with autism if needed and is able to circulate the room to answer questions as well
- Teacher will verbally acknowledge and thank students who are on task and will verbally address the students who are distracted
- Teacher will set clear expectations about the work and the student’s behavior

Extensions:

This lesson could be extended depending on the students and where they are at in their learning. The teacher can add more stations with different place value activities that provide more of a challenge or less. It could also be extended into a place value projects that the students show their understanding and strategies in a place value project that they work on for a couple of classes. (See below an example of a place value project that can be adapted for any student depending on where they are at in their understanding of place value) If students need more time with these stations or with the teacher the stations could continue for next class to build a better understanding.

Reflections (if necessary, continue on separate sheet):

To be filled out after the lesson

****I did however see a similar lesson in my practicum classroom and watched how it all played out. I thought it was such a great idea and the reflections I had on it were:**

- The games were really interesting for the students as they made outside of the classroom connections to them such as the imposter (a game they all play at home).
- Teacher picks the groups to keep the focus and allow differentiated activities depending on what each group understands well.
- Sometimes the stations take longer than expected and to allow for extensions.
- Have prodigy as an option for the students that finish early.
- If students need extra help they can look through their notes or come see the teacher to ask questions.
- Overall lots of engagement and students like to work in groups

Station 1: Yahtzee

****Students roll all 5 dices and try to fill in one of the categories using the numbers they have. Example you roll 3, 4, 6, 2, 1 you can fill in the first category “Number with 3 in the hundredths**

place” by writing down 62,431 etc. **

Place Value Yahtzee Score Card

Category	Decimal
Number with 3 in the hundredths place	____.____
Number with 5 in the ones place	____.____
Number with 2 in the thousandths place	____.____
Number with 6 in the tenths place	____.____
Number with 4 in the tens place and 1 in the hundredths place	____.____
Number whose ones and thousandths digits add up to 9	____.____
Number whose tenths and hundredths digits add up to 6	____.____
Number with three of the same digits	____.____
WILD! Any number can be written here.	____.____

If you are unable to fill in a number for any category at the end of your turn, place an X beside any available category. At the end of the game, compare the number you wrote in each category with the number your opponent wrote. If you wrote the greater number for that category, circle it and give yourself 1 point.

Place Value Yahtzee Score Card

Category	Decimal
Number with 3 in the hundredths place	____.____
Number with 5 in the ones place	____.____
Number with 2 in the thousandths place	____.____
Number with 6 in the tenths place	____.____
Number with 4 in the tens place and 1 in the hundredths place	____.____
Number whose ones and thousandths digits add up to 9	____.____
Number whose tenths and hundredths digits add up to 6	____.____
Number with three of the same digits	____.____
WILD! Any number can be written here.	____.____

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Number with 6 in the tenths place	____.____
Number with 4 in the tens place and 1 in the hundredths place	____.____
Number whose ones and thousandths digits add up to 9	____.____
Number whose tenths and hundredths digits add up to 6	____.____
Number with three of the same digits	____.____
WILD! Any number can be written here.	____.____

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Number with 4 in the tens place and 1 in the hundredths place	____.____
Number whose ones and thousandths digits add up to 9	____.____
Number whose tenths and hundredths digits add up to 6	____.____
Number with three of the same digits	____.____
WILD! Any number can be written here.	____.____

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Place Value Yahtzee Score Card

Category	6-digit number
Number with 8 in the hundreds place	
Number with 5 in the ones place	
Number with 2 in the hundred thousands place	
Number with 6 in the thousands place	
Number with 4 in the tens place and 1 in the ten thousands place	
Number whose hundred thousands and tens digits add up to 9	
Number whose digits add up to 21	
Number with three of the same digits	
WILD! Any number can be written here.	

If you are unable to fill in a number for any category at the end of your turn, place an X beside any available category. At the end of the game, compare the number you wrote in each category with the number your opponent wrote. If you wrote the greater number for that category, circle it and give yourself 1 point.

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Number with 5 in the ones place	
Number with 2 in the hundred thousands place	
Number with 6 in the thousands place	
Number with 4 in the tens place and 1 in the ten thousands place	
Number whose hundred thousands and tens digits add up to 9	
Number whose digits add up to 21	
Number with three of the same digits	
WILD! Any number can be written here.	

If you are unable to fill in a number for any category at the end of your turn, place an X beside any available category. At the end of the game, compare the number you wrote in each category with the number your opponent wrote. If you wrote the greater number for that category, circle it and give yourself 1 point.

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Number whose hundred thousands and tens digits add up to 9	
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Number with three of the same digits	
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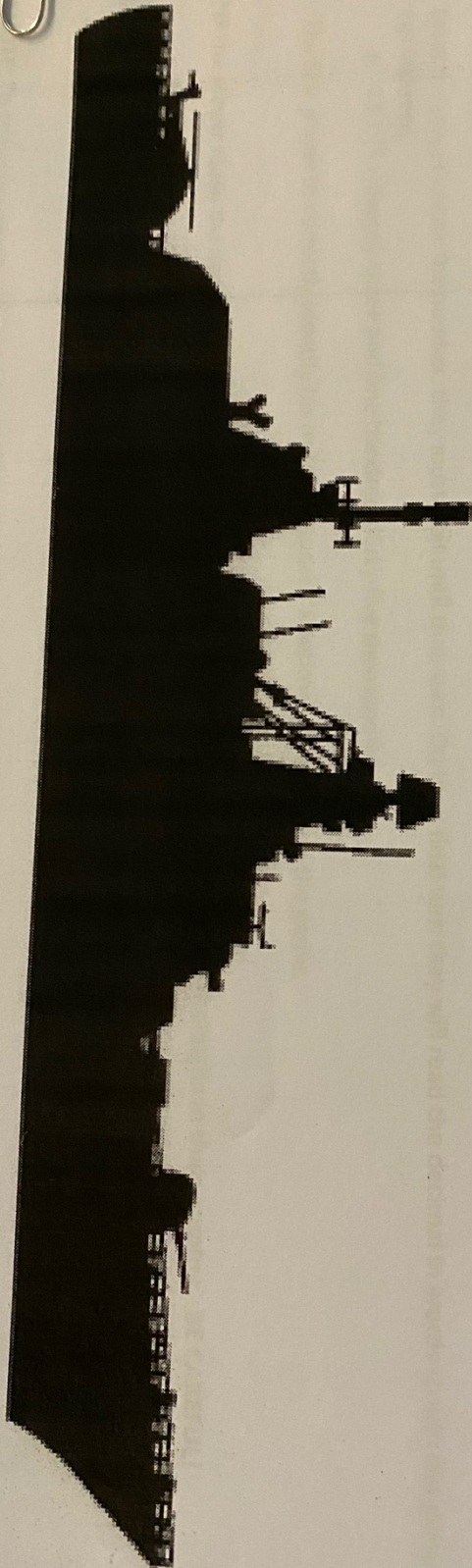
Place Value Yahtzee Score Card

Category	Number

If you are unable to fill in a number for any category at the end of your turn, place an X beside any available category. At the end of the game, compare the number you wrote in each category with the number your opponent wrote. If you wrote the greater number for that category, circle it and give yourself 1 point.

Station 2: Decimal Battleship

Decimal Battleship



Making Math Fun — arranged by Carley Taylor

Decimal Battle Ship Instructions:

1. Find a partner
2. Each partner writes any 5-digit decimal number of their choice.
3. Partners take turns asking questions about a particular place value spot. For instance:
 - a. "Is your *hundredth's* spot a 3?" If the opponent looks at his or her *hundredth* spot and sees a 5, then he or she would answer 'higher', meaning that spot is bigger than a 3. The player may then cross off the numbers 0,1,2,3 on their hundredth's place value. The opponent will now take a turn.
4. Once the player knows the number, they must wait until their turn. On their final turn they will read the decimal in words to win the game. For instance:
 - a. 23.135 – twenty-three and one hundred thirty-five thousandths.
5. The first player to correctly identify his or her opponent's decimal number wins the game.

****IF the player reads the decimal incorrectly, he or she must tell his or her opponent one of the digits in their number. BE CAREFUL!**

***NOTE: To conserve paper, laminate or use page protectors a class set. Then allow students to use dry erase markers! Enjoy!**

Place Value Battle Ship

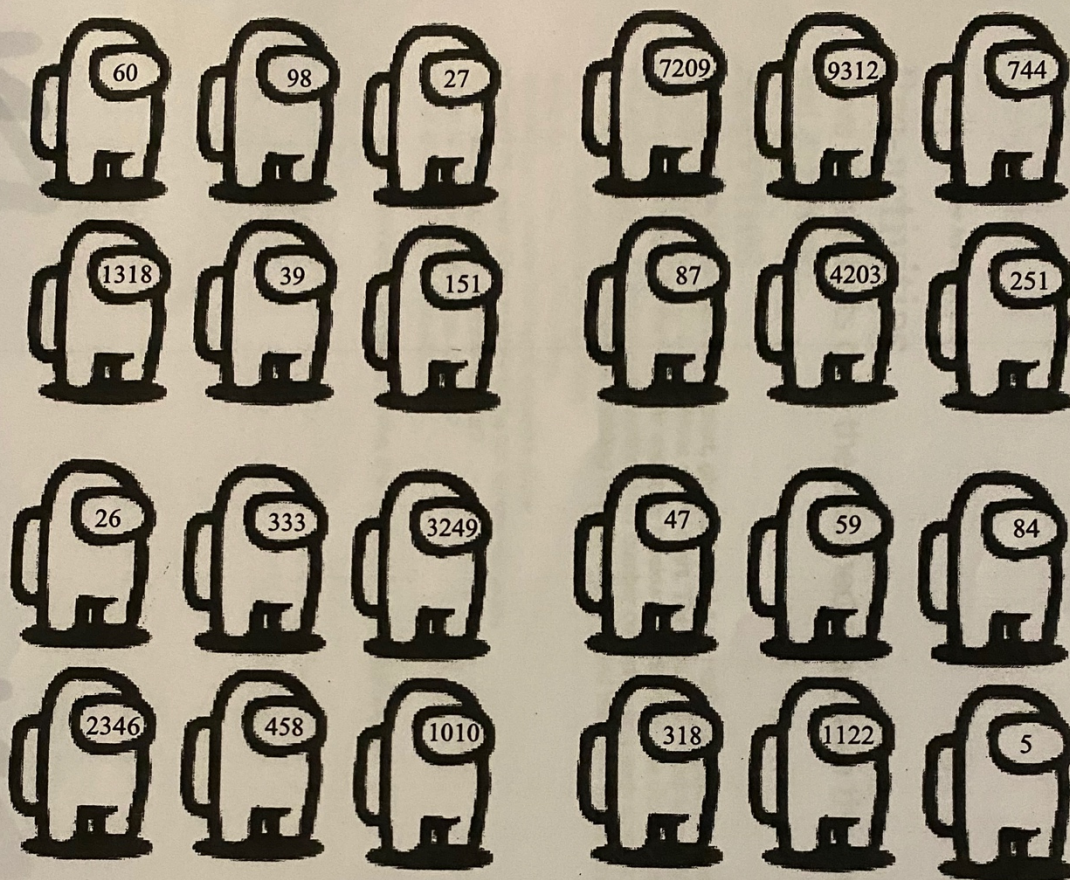
My Number:

A vertical strip of four blank, lined pages from a notebook. The pages are white with faint horizontal lines. The notebook's binding is visible on the left edge, and the pages are slightly fanned out, showing the edges of the pages below. The top page has a small, dark, circular mark near the left edge.

**My Partner's
Number:**

0	5	0	5	0	5
1	6	1	6	1	6
2	7	2	7	2	7
3	8	3	8	3	8
4	9	4	9	4	9

Station 3: Find The Imposter

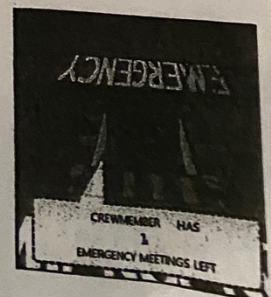


Find the Impostor!

- Color all numbers with a 5 in the tens place in blue
- Color all even numbers with a 3 in the hundreds place in green
- Color all multiples of 5 (5, 10, 15, 20...) in red (those numbers are *definitely* sus)
- Color all numbers strictly higher than 70 but strictly lower than 100 in yellow
- Color all numbers with the same digit in the tens and ones place in pink
- Color all odd numbers with a 2 in the hundreds place in orange
- Three of the remaining four numbers add up to exactly 100. Color them in purple

Emergency Meeting!

Describe the Impostor number (odd/even, hundreds/tens/ones, smaller than...)



EXTENSION: Project




Real Estate Project



_____ (Name)
_____ has won the lottery!

Insert your picture here!

You have received a cheque for:

NAME AND ADDRESS		3321
PAY TO THE ORDER OF _____	\$	<input type="text"/>
_____		DOLLARS
BIG BANK		
MEMO _____		
⑆331674485⑆ 3321 ⑆ 1456874801 ⑆		
©2013 Donna Boucher		

Task: You are going to purchase **3** homes/condos/apartments in any city you wish. Look through the real estate brochure, MLS listings on the internet, or newspaper from your house to find your new homes.

Step 1- Deposit your cheque into the bank- record on your sheet how much your beginning BALANCE is on your bank statement sheet.

Step 2- How to purchase your homes:

a) Choose your city. Where would you like to live or visit?

b) Into Google, type your city name and homes for sale. Sotheby International is a real estate company around the world. Try their website <https://www.sothebysrealty.com/> Remax is another good one

c) Choose a house and copy and paste a picture of it into the bottom of this doc. Read the description to see what it has to offer.

Step 3- Write a cheque to the realtor (Mrs. Underwood) for the amount for the house. Record on your statement sheet. Subtract from your bank balance.

Step 4 - Write or type out a short explanation of why you would want to buy this house (include at least 3 reasons and 3 adjectives). Make sure your sentences are well-written.

Step 5 - Repeat 2-4 with 2 more houses

Rubric

	Beginning (Emerging)	Practicing (Developing)	I've Got It (Proficient)
Vocabulary - Balance, credit, debit, sum, difference)	Requires prompting or support to understand and use appropriate vocabulary	Is able to use and understand most of the vocabulary terms	Is able to use, understand, and apply vocabulary terms
Calculations	Requires some support to add and subtract large numbers	Addition and subtraction of large numbers is mostly accurate; some mistakes with process	Addition and subtraction of large numbers are accurate and the process is consistent. Error are basic facts not process
Basic Facts	Many errors with both addition and subtraction facts to 20	Some errors with addition and/or subtraction facts to 20	Few or no errors with addition and/or subtraction facts to 20
Descriptions	Descriptions are simple, short and lack describing words	Descriptions have some variety in words and describing language; some sentences are simple	Descriptions are varied, use adjectives and descriptive vocabulary, and are detailed

Copy and Paste pictures of your homes here:

Write a description under each house of why you would like to buy this house- include 3 reasons why you would want this house and use 3 adjectives minimum in each description)

BANKING VOCABULARY

VOCABULARY: These are the words you need to know at the end of this project

A **BALANCE** is the amount of money that is in your account.

A **TRANSACTION** is something you do that changes the balance of your account. This can be either a deposit or withdrawal from your account.

A **DEPOSIT** is when you put money IN to your bank account. When you make a deposit, your account balance goes up.

A **WITHDRAWAL** is when you take money OUT of your bank account. When you make a withdrawal, your account balance goes down.

BANK STATEMENT SHEET Name:

Transaction Date	Deposit	Withdrawal	Balance	Show your work

NAME AND ADDRESS


3321

PAY TO THE ORDER OF

\$

DOLLARS

BIG BANK



MEMO

331674485

3321

1456874801

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NAME AND ADDRESS


3321

PAY TO THE ORDER OF

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DOLLARS

BIG BANK



MEMO

331674485


3321

1456874801

©2013 Donna Boucher

DATE: _____


PAY TO THE
ORDER OF _____ \$ _____

 FOR _____

_____ AUTHORIZED SIGNATURE (\$)

DATE: _____

PAY TO THE
ORDER OF _____ \$ _____

 FOR _____

_____ AUTHORIZED SIGNATURE (\$)

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