Overall Expectation (O.E.): Solve a variety of problems involving the addition and subtraction of single-digit whole numbers using a variety of strategies. **Specific Expectations:** ● relate numbers to the anchors of 5 and 10, ● compose and decompose numbers up to 20 in a variety of ways, using concrete materials, ● solve a variety of problems involving the addition and subtraction of whole numbers to 20, using concrete materials and drawings, ● solve problems involving the addition and subtraction of single-digit numbers, using a variety of mental strategies,	**Big Ideas:** ● Numbers can be represented in many ways. ● There are many ways to add and subtract numbers. ● Numbers tell how much or how many. ● It is useful to use number benchmarks when relating and estimating amounts. ● It is important to know when it is appropriate to use each operation.

Learning Experience 1 (60 minutes)	Learning Experience 2 (120 minutes)	Learning Experience 3 (60 minutes)	Learning Experience 4 (60 minutes)
Activate Prior Knowledge: Use an open ended question. **Open Ended Question:** You and your friend have 18 pieces of Lego. You have more than your friend. How many pieces could you each have? Students show their thinking using the manipulatives provided as they work through the problem. [Provide a wide variety of manipulatives along with 5-frames, 10-frames and number lines.] [10 minutes] Students show and verbalize their thinking to a partner. [Think, Pair, Share, 10 minutes] Ask students to verify their conjectures by showing their thinking in their math journals. They will illustrate (and write) what they shared with their partners. [10 minutes] If students aren't ready for the steps above they could be done as a whole group (sharing, teacher records, etc.). SHARING sheet provided (created after the lessons were completed). These sheets could be copied and the laminated so the the students can use dry erase markers to show their work. The numbers used in the question could also vary to allow for differentiation. Provide options or math stations that link with the math expectations being covered for early finishers, groups and/or individual learners. **Consolidation: [BANSHO](#)** [10 minutes] During BANSHO record the different strategies the students used. [15 minutes] **Ask:** (sample reflection/consolidation/thinking questions) * How many pieces could you and your partner each have? *How did you know you have 18 pieces? *How many pieces did you have? *How do you know you had more and your partner had less? After the students share, what they had, **Ask:** * Could <u>Name</u> and <u>Name</u> have been	**Math Reflections:** Using the learning from experience 1 guide students through an introduction of the learning goal (O.E.) [10 minutes] **Possible Questions - Math reflections:** ● Yesterday I learned… ● I'm still wondering about… ● A challenge I had was… ● My partner and I showed… ● What numbers did you use yesterday? ● What did you do with those numbers? **Create the (O.E.) for the students (check for understanding). Co-create success criteria.** [10 minutes] **Review co-constructed success criteria, using math tools appropriate to show thinking (not used as toys) and working collaboratively. [5 minutes]** Note: It is likely that this will occur the day or period following the creation of the success criteria. **SUCCESS CRITERIA** ● I can organize my thinking. ● I can subitize numbers to 10. ● I can represent my thinking in counting. ● I can use anchors of 5 and 10 to relate numbers. ● I can represent and compare whole numbers. ● I can use models to understand what the symbols in operations represent. Possible ways of creating and representing the learning goal and success criteria: ● Create on the SmartBoard ● Have a typed up Learning Goal for the students to glue into their math journal so that they can illustrate it below using math terms, illustrations, their understanding success criteria…, ● Chart paper/poster **Activity:** [Train Station page 75-82 (link to A Guide to Effective Instruction in Mathematics Grades 1-3 Number Sense and Numeration)](#) **- See the Guide for additional expectations, materials, About the Math, math language, adaptations/extensions and additional success criteria.** **GETTING STARTED** [10 minutes] Be sure to complete this activity only after students have been introduced to the addition symbol (+), the subtraction symbol (–), and the equal sign (=). Tell students they are going to be making 2-colour trains using interlocking cubes or coloured tiles. Explain that the trains have to follow two rules: 1. The cubes must be in a row, and the same colours must stay together. 2. All trains must start with the same colour. Show students an example of a 4-car train that follows the rules and an example of a 4-car train that does not follow the rules. [(Please see the Guide for images of the rules followed and not followed)](#) **WORKING ON IT** [20 minutes] Have students work in pairs to create as many different seven-car trains as they can. Provide each pair with OS1.BLM1: Two-Centimetre Grid Paper (or grid chart paper). Show students how to cut out a strip of seven squares and then how to colour the squares to represent one of their trains. Ask students to make coloured strips to represent each of their seven-car trains. Challenge students to find a way to organize and display their paper trains on a piece of construction paper (e.g., 3 yellow + 4 blue = 7 cubes; 4 blue + 3 yellow = 7 cubes).	**Another option could be to combine learning experiences 3 and 4.** Prepare the craft stick people in advance and use the problem solving questions as one of the stations (teacher directed). The problems have also been placed on YouTube. The students can then play each problem and listen to them as often as they wish. **Problem Solving** **Minds On (options): Math Journals** [10 minutes] You add two numbers to get to 16. What do you know for sure about the two numbers? How would you sort these number equations? (Are there any that don't belong?) **3 + 8 4 + 1 + 6 9 + 2 5 + 5 14 - 3** **Action: (options)** [20 minutes] 1. Tell three addition questions and three subtraction questions you could show if you have 10 counters. You do not have to use all 10 counters. Make up stories that the questions could be about. 2. [Word Problems page 80 (link to A Guide to Effective Instruction in Mathematics Grades 1-3 Number Sense and Numeration)](#) Co-create anchor chart of possible addition and subtraction strategies that could be used to solve problems. **Consolidate: Using the Guide link below** [LEARNING CONNECTION 1](#) [20 minutes] **Addition and Subtraction Stories** **Materials** ● 1 resealable plastic bag per student ● 10 craft sticks per student ● markers, stickers, or construction paper and glue Give each student a resealable plastic bag and 10 craft sticks. Have students decorate their sticks to make 5 stick people. Students can make their people using cut-and-paste materials or simply by using markers to draw on happy faces. Students can use their stick people to model stories told by the teacher or by other students. Tell students that they are going to hear some stories and that they should act them out using their stick people. **TIP: These craft stick characters could be created in advance during another class - not necessarily during the math lesson.** **Note**: It is a good idea to write the number sentence 3 + 2 = 5 on the whiteboard or Smart Board.	**Math Station Consolidation Games** (Students rotate through stations and complete work according to their learning and needs.) **Teacher created groups** **(Student Needs + Teacher Needs = Groups)** For example: Assessment, extra time/support, ready for extensions, next steps - (Less groups for smaller classes.) Links to [A Guide to Effective Instruction in Mathematics Grade 1-3 Number Sense and Numeration](#) has been provided for each activity found in the guide. **Station #1: [Roll and Add Game page 79](#) (could be setup as a Smart Board lesson/game).** **Materials** ● 1 copy of OS1.BLM2 per student ● 2 number cubes ● 2 crayons Provide each student with the grid paper and a crayon. Working with a partner, the student will roll two number cubes, adding the numbers and colouring one square on the grid above the sum. The game ends when one player has coloured all the squares in one number column. This activity can also be used as a Home Connection by sending home OS1.BLM2. **Station #2: [Hot Dog Stand page 81](#)** **Materials:** OS1.BLM6: Hot Dog Stand Game Board (1 per student) small manipulatives (cubes, 10 frame, counters, etc.) OS1.BLM7: Plus/Minus Spinner{"assetList":[{"type":"image","data":[""]}],"source":"com.adobe.muse","version":"2.0"} (1 per pair of students) number cube (1 per pair of students) Students play this game with a partner. Give each student a copy of **OS1.BLM6:** Hot Dog Stand Game Board. Each player begins with 15 manipulatives, which they place on **OS1.BLM6:** Hot Dog Stand Game Board to represent people lined up at the hot dog stand. The first player spins the plus/minus spinner to find out the operation for his or her turn. After the spin, the player rolls the number cube to find out how many people have joined the line or how many people have left the line. The player then performs the operation by modelling with manipulatives, either adding to or removing from the line. Players take turns until one player's line has disappeared (reached zero). After playing the game, consider asking the students to write a number sentence to describe their "people" at the end of the game (e.g., 8 people in the line + 6 people left the line = 2 people in all). **Station #3: Technology** - use connections that will

partners.
* Who would have been the partner with more/less?
(Now some students will be mentally adding the numbers to see if they make 18 and you can put two students together and **ask**: If <u>Name</u> and <u>Name</u> had been partners how many blocks did the teacher say they could use? Who had less/more?)

Ask:
* What math connections can you make to other activities, songs, and games we've had?
* What strategies did you use?
* What did you learn from your mistakes (or someone else's mistake)?
* What do we need to learn?

Games from learning experience 4 could be introduced and used for early finishers, warm up activities and/or additional consolidation or reflection. Early finishers activity that could be set up at any time **Refrigerator Booklets page 80**

Finally, challenge students to write number sentences to describe each of their trains. As students work, observe the process and ask probing questions:
- "How are you organizing your trains?"
- "How will you check whether you have found all the different ways to make the trains?"

Students' work may look something like this: (Please see the Guide for image)

CONSOLIDATION - REFLECTING AND CONNECTING [10 minutes]
Have each pair of students bring their displays of coloured strips to share with the class. Ask students the following questions:
- ❖ "What was difficult about making the trains?"
- ❖ "What was easy?"
- ❖ "Did you notice any patterns when you were making your trains?"
- ❖ "Did you use a pattern to help you put your trains in order?"
- ❖ "How did you put your trains in order?"
- ❖ "How do you know you have built all the trains?"

Assessment As, For, and Of Learning
Observe students as they build and organize their trains, and record observations on an anecdotal recording sheet in response to the reflecting and connecting questions listed above, the specific expectations and the success criteria. This will inform next steps for students.

Substitute students' names in the following story:
Jason, Jennifer, and Corey were thirsty and went to have a drink at the water fountain. How many people are at the water fountain? Ruth and Jamal decided they wanted a drink, too. How many people are at the water fountain now?

Tell a few more stories for students to act out, including stories involving subtraction. Students could act out lining up, going to the book centre or the math centre, and so on. Groups of students can work together to make up addition and subtraction stick people stories to present to the class.

Assessment As, For, and Of Learning [10 minutes]
After each story, have students refer to the anchor chart to identify the strategy they used to solve the problem. Ask if they are beginning to use more efficient strategies or if they found any new strategies to add to the anchor chart.
On index cards or in their math journal have them complete an exit card illustrating their preferred strategy.

consolidate the learning and help students achieve the learning goal and success criteria.
For example:
- **OERB - "**Race to the Finish with Math", "Swimming Competition", "Number Time", "How Many Marbles",
- **Mathies**
- School and/or School Board based iPad apps
- School Board supported online games
- Smart Board activities (for a group or individual)

Station #4: Unfinished Work and/or Continued learning/activities from previous days.

Station #5: Teacher Guided-Math Group based on student need and **success criteria**.