Grade K:
Resources for Grade-Level Routines

"*Fluency in each grade involves a mixture of just knowing some answers, knowing some answers from patterns (e.g., "adding 0 yields the same number"), and knowing some answers from the use of strategies. It is important to push sensitively and encouragingly toward fluency of the designated numbers at each grade level, recognizing that fluency will be a mixture of these kinds of thinking which may differ across students.*" (CC/OA Progression, p. 18)

RELEVANT STANDARDS:

K.CC.A.1: Count to 100 by ones and by tens
K.CC.A.2: Count forward beginning from a given number within the known sequence (instead of having to begin with 1).
K.CC.B.4: Understand the relationship between numbers and quantities; connect counting to cardinality
K.CC.B.5: Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.
K.OA.A.2: Solve addition and subtraction word problems and add and subtract within 10, e.g., by using objects or drawings to represent the problem.
K.OA.A.5: Fluently add and subtract within 5

HOW TO USE THESE RESOURCES:

This document provides a set of short activities extracted from Engage NY and Illustrative Mathematics, two Open Education Resources, to supplement the fluency practice in *GO Math!*. Although many *Go Math!* lessons include "Fluency Builders," they don't always align to grade-level expectations. Teachers are encouraged to use the activities that do align to the above standards and supplement with the resources in this document.

The activities are designed to support students' progress toward the grade-level numeracy and fluency articulated in the Standards. They are intentionally short, providing educators the flexibility to use them before or after a lesson or anytime during the school day. The 31 activities are intended to be used throughout the school year, more frequently in conjunction with some of the earlier *GO Math!* chapters. They are organized by chapter so that teachers can use them in each *GO Math!* chapter as part of their lesson planning process.

GRADE-SPECIFIC NOTES:

Resources are strategically placed to support the work of a particular chapter, but should continue throughout the year to provide students with the depth of practice that is required by the standards.

ACTIVITIES TO USE WITH CHAPTERS 1 – 3

These activities will build student facility with K.CC.A.1 (beginning with numbers within 20 and continue to extend to numbers within 100 by the end of the year)

1. CHORAL COUNTING

Materials: 100 chart or number line and a pointer.

Directions:

- As a whole group, have students chant the counting sequence starting with one to thirty, using the pointer to follow the number sequence. Over time, increase the range to one to fifty and then one to one hundred. Eventually have a student take over the job of pointing out the numbers in the sequence. Highlight the multiples of ten using a marker or a colored screen and have students chant the counting sequence by 10s. This should be done daily.
- Counting the days in the month every day is another great place to practice the counting sequence; first count the number of days total, and then count from the current date to the end of the month to get practice starting at numbers other than one.
- Daily transitions are another great opportunity to practice oral counting; for example, the teacher can say, "Clean up by the time I count to twenty, count with me," or "Meet me in the meeting area before I count backward from 10."
- Individual student number lines can be made using two 0-99 charts copied on two different colors of paper. Cover the back of each paper with masking tape and leave a short piece hanging off the edge of the paper on the right side. Make sure the left side of the paper is cut flush with the edge of the chart. Cut each 0-99 chart into strips, i.e. 0-9 into one strip, 10-19 into another and so on, then connect the 0-9 of one coo the 10-19 of the other color, alternating until you have a complete number line from 0-99 that alternates colors for each different number family. This will make two complete number lines. Students can be given individual number lines and practice counting on their own or in pairs. Multiples of ten can be highlighted with a marker and students can practice counting by 10s.

Illustrative Mathematics, Choral Counting

2. COUNTING CIRCLES

Directions:

- Have students stand and form a circle facing in toward each other.
- Select a counting sequence to be practiced with no more than 8-10 numbers in the sequence.
- Have the students start counting around the circle one by one until the last number in the sequence is reached.
- When the last number is reached all students clap and that student is out and sits down on the floor in the middle of the circle.
- Start the counting sequence over again until another student reaches the number at the end of the sequence; everyone claps and that student sits in the center with the first student.

Illustrative Mathematics, Counting Circles

3. START AND STOP COUNTING

Directions:

- Have students form a circle and sit facing in toward each other. The teacher selects a range of the number sequence to practice. Start with the teacher walking around the outside of the circle while counting aloud starting at the beginning of the selected counting sequence.
- After a few moments the teacher taps a student on the head and sits in the student's spot. The student then gets up from the circle and continues the counting at the point that the teacher left off while walking around the outside of the circle.
- At the teacher's signal the student who is counting selects the nearest student to them by tapping them on the head to take over counting and sits in that student's spot. The next child then continues the counting sequence until the teacher indicates a change and so on until each child has had a turn. If the class reaches the end of the counting sequence before each child has participated simply start the sequence over again.
- This is similar to Duck, Duck, Goose but without the chasing to get to a spot.

Illustrative Mathematics, Start-Stop Counting

4. **COUNT TO 100 BY ONES**
   Materials: Class rekenrek to 100 or Rekenrek fluency template
   Directions: This routine calls attention to the structure of numbers to 100 with the use of the Rekenrek's rows of 10 and the verbal cue as they cross out the decades. Students count to 100 (or as high as they are able to) by touching the beads on the Rekenrek or fluency template and saying buzz after each decade number. This activity is found in Module 6 lesson 1 fluency practice section.
   EngageNY, Module 6, Lesson 1

5. **PICK A NUMBER COUNT ON**
   Materials: Numerals within students known sequence written on cards
   Directions: The teacher puts multiple numbers in a hat or on sticks from the known counting sequence. She randomly picks one number and asks the class to count on ten numbers from that number. The class does this chorally.
   Illustrative Mathematics, Pick a Number, Counting On

ACTIVITIES TO USE WITH CHAPTERS 1 – 3

These activities will build student facility with K.CC.B.4 and K.CC.B.5. (For a counting overview, please see Illustrative Mathematics, Counting Overview)

1. **GOODY BAGS**
   Materials: Many small zip lock bags of counting objects. Each bag should contain a number of objects in the counting sequence students are working on, between 1 and 20. Post-it notes and pencils.
   Directions: Students count the objects, record the number on the post-it note and stick the post-it note onto the outside of the bag.
   Illustrative Mathematics, Goody Bags

2. **COUNTING MAT**
   Materials: counting mat and small objects
   Directions: The teacher gives students the counting mat and many small objects to count with. Some students will automatically read the numbers and assemble the correct number of object then match them to the dots on the counting mat to verify they counted correctly. Other students who need more scaffolding will match each object to a dot. Students who do it this way should be guided to count the objects once they have assembled them on the dots. Once a student is done with each number they can move on to the next number.
   Illustrative Mathematics, Counting Mat

3. **POP UP NUMBER**
   Directions: Students sit in a circle and pop up on a given number. Activity can be found in the fluency practice section. The directions in Module 1 lesson 5 use the number 3 as the pop up number, but any number can be used as the pop up number.
   EngageNY, Module 1, Lesson 5

4. **HOW MANY DOTS**
   Materials: Fluency template dot cards in Engage Module 1 lesson 8
   Directions: Teacher shows students dot cards and the students tell how many dots they see. The directions are in Module 1 lesson 8 in the fluency practice section.
   EngageNY, Module 1, Lesson 8

5. **5 FRAME PEEK-A-BOO**

Materials: 5 group cards from Module 1 lesson 8 (above)
Directions: Teacher uses the 5 frame dot cards and flashes them to work with students to begin to subitize the quantity without counting. The directions are in Module 1 lesson 9 in the fluency practice section and the template for the five group cards are in Module 1 lesson 8.
EngageNY, Module 1, Lesson 9
Template: EngageNY, Module 1, Lesson 8

6. **LINE UP, SPRINKLE, CIRCLE**
Materials: beans, construction paper cup per student
Directions: Students count beans from a cup, arrange them in various formations, while working to conserve the number of beans. The directions are in Module 1 lesson 10 fluency practice section.
EngageNY, Module 1, Lesson 10

7. **COUNTING IN VARIOUS FORMATIONS**
Materials: clear bag with 10 beans or counters, mat with a counting circle, cup per student
Directions: Students work to count objects in various formations including scattered and in a circle. Students concentrate on how to keep count of their starting and ending places. Work with conservation of a quantity is also stressed in the Conceptual Development portion of Module 1 lesson 18. Continued practice can also be found in Module 1 lessons 20 and 24.
EngageNY, Module 1, Lesson 18

8. **BEEP NUMBER**
Directions: This activity works with students' ability with number order. The teacher begins counting from a number within the known sequence and then says beep after a couple of numbers. Students must identify the beep number. This activity is found in Module 4 lesson 40 fluency practice section.
EngageNY, Module 4, Lesson 40

ACTIVITIES TO USE WITH CHAPTERS 3 AND 4

These activities will build student facility with K.CC.A.2 and K.CC.B.5.

1. **DOT CARD SUBITIZING**
Materials: Dot Cards
Directions: Students identify how many dots that they see on the various dot cards. This activity can be used for numbers 6-9. All templates on EngageNY website in Module 3.
Template for 6: EngageNY, Module 3, Lesson 13 or EngageNY, Module 4, Lesson 13
Template for 7: EngageNY, Module 3 Lesson 15
Template for 8: EngageNY, Module 3 Lesson 17
Template for 9: EngageNY, Module 3 Lesson 19

ACTIVITIES TO USE WITH CHAPTERS 5 AND BEYOND TO BUILD STUDENT FLUENCY WITH K.OA.A.5.

Students begin using materials to develop conceptual understanding of addition and subtraction (connected to K.CC.B.4) moving to procedural skill and fluency by the end of the year.

1. **SHAKE AND SPILL**
Materials: Per student cup and at least five 2-sided counters
Directions:
- The students put the counters in the cup, shake it, and spill them onto the table. Alternatively they can use their hands.
- The students determine how many of each color is showing and record the sum using drawings or equations.
- The students should "shake and spill" several times to show different pairs of numbers that sum to 5.

Illustrative Mathematics, Shake and Spill

2. **MY BOOK OF FIVE**
   Materials: Double sided counters, Book of Five Template
   Directions: Students will be given double sided counters/dots. It is important for the markers to match the colors on the counters. Students take five counters in their cupped hands (or a cup), shake them around, and pour them onto the desk. Next, they count how many counters are yellow and how many are red. Students then record the numbers in their book.
   Illustrative Mathematics, My Book of Five

3. **HOW MANY IS ONE MORE**
   Materials:
   (T) Large 5-group cards (Lesson 1 Fluency Template 1)
   (S) 5-group cards (Lesson 1 Fluency Template 2)
   Directions: Students work to identify the number of dots shown on a five group card and then tell how many is one more. Activity is found in Module 5 lesson 2 and the template is found in Module 5 lesson 1.
   Activity: EngageNY, Module 5, Lesson 1
   Lesson: EngageNY, Module 5, Lesson 2

4. **HIDE 1**
   Materials: Lesson 1 fluency template 1 (see above)
   Directions: This fluency activity advances the familiar work with the pattern of *1 less* as it requires students to visualize removing a dot from the 5-group card.
   EngageNY, Module 5, Lesson 1
   EngageNY, Module 5, Lesson 3

5. **COUNTING DOTS AND SPACES**
   Materials: Fluency Template A (large five frame cards)
   Directions: Students use a five frame card to talk about the number of dots shown and how many dots are needed to fill the five frame. Activity works on all of the decompositions of five. This activity is found in Module 4 lesson 1 fluency practice section.
   EngageNY, Module 4, Lesson 1

6. **MAKING 3, 4, AND 5 FINGER COMBINATIONS**
   Directions: The teacher uses different finger flashes and students determine how many fingers are needed to make a target sum. This activity is found in Module 4 lesson 1 fluency practice section.
   EngageNY, Module 4, Lesson 1

7. **APPLICATION PROBLEM: SNAP**
   Materials: snap cubes
   Directions: Students do this activity with a partner. Each group has a snap cube tower of no more than 5 cubes. One partner snaps the tower into two pieces and shows one of the parts. The other partner determines the hidden part to make the total. This activity is found in Module 4 lesson 6 application problem.
   EngageNY, Module 4, Lesson 6

8. **BUILDING ONE MORE AND 1 LESS TOWERS**
   Materials: 10 linking cubes per student.

Directions: This activity helps to transition student from counting to addition and subtraction. Students are guided through the process of building towers that are one more or one less. This activity is found in Module 4 lesson 19 fluency practice section.
EngageNY, Module 4, Lesson 19

9. **ROLL AND SHOW ONE LESS**
Materials: Dice with the 6 dot side covered to represent a count of zero.
Directions: Student rolls a dice and subtract one from the total shown on the dice. Students build from their understanding of counting up and down to the fluency with adding and subtracting one from a number. This activity is found in Module 4 lesson 21 fluency practice section.
EngageNY, Module 4, Lesson 21

10. **READY, SET, ADD**
Directions: Similar to rock, paper, scissors, students work a partner and each flashes a set of fingers and race to add the total number of fingers. Students practice the commutative property by stating the equation in both of its forms. This activity is found in Module 4 lesson 31 fluency practice section.
EngageNY, Module 4, Lesson 31

11. **IMAGINE MORE TO ADD TO FIVE**
Materials: Fluency practice set A
Directions: This activity bridges the pictorial to abstract as students make progress on their grade level fluency. Instead of drawing on addition circles to make a total of five, students to visualize how many more are needed in their set in order to make the target number of five (can be used for other totals within 5). This activity is found in Module 4 lesson 37 fluency practice section.
EngageNY, Module 4, Lesson 37

12. **CROSS OUT TWO TO SUBTRACT WITHIN 5**
Materials: Fluency practice set B
Directions: Students will work to develop flexibility with addition and subtraction with this fluency set. Students have pictures of objects and are directed to cross out 2 to complete the equations. This activity could be used to help students develop flexibility with other strategies (cross out 1). This activity is found in Module 4 lesson 37 fluency practice section.
EngageNY, Module 4, Lesson 37

13. **DIFFERENTIATED FLUENCY PRACTICE SETS**
Materials: Core Fluency Practice Sets
Directions: These sets provide an opportunity to review and master the sums and differences through five using practice sets and sprints. Five options are provided with each of the lessons below with sheet A of each set being the easiest. Students are directed to complete as many as they can in 96 seconds with 100% accuracy before moving onto the next leveled sheet. Students can also be interviewed on their practice strategies. These fluency sets can be found in Module 4 lessons 29.
EngageNY, Module 4 Lesson 29

ACTIVITIES TO USE WITH CHAPTERS 7 AND BEYOND TO BUILD STUDENT FACILITY WITH SOLVING PROBLEMS WITH THE APPROPRIATE PROBLEM TYPES AS IDENTIFIED IN K.OA.A.2

There are many lessons throughout Engage NY Module 4 that engage students in problem solving with appropriate problem types for K.OA.A.2. The application problems in the following lessons demonstrate each of the four problem types as described in K.OA.A.

Add to result unknown

- EngageNY, Module 4, Lesson 1
- EngageNY, Module 4, Lesson 12
- EngageNY, Module 4, Lesson 16
- EngageNY, Module 4, Lesson 31

Take from result unknown

- EngageNY, Module 4, Lesson 21
- EngageNY, Module 4, Lesson 23
- EngageNY, Module 4, Lesson 24
- EngageNY, Module 4, Lesson 29
- EngageNY, Module 4, Lesson 34
- EngageNY, Module 4, Lesson 36

Put together/Take apart total unknown

- EngageNY, Module 4, Lesson 3
- EngageNY, Module 4, Lesson 8
- EngageNY, Module 4, Lesson 11
- EngageNY, Module 4, Lesson 14
- EngageNY, Module 4, Lesson 15

Both addends unknown

- EngageNY, Module 4, Lesson 2
- EngageNY, Module 4, Lesson 5
- EngageNY, Module 4, Lesson 18
- EngageNY, Module 4, Lesson 25
- EngageNY, Module 4, Lesson 26
- EngageNY, Module 4, Lesson 27
- EngageNY, Module 4, Lesson 28
- EngageNY, Module 4, Lesson 35

ACTIVITIES TO USE WITH CHAPTERS 9 AND 10 TO BUILD STUDENT FACILITY WITH COUNTING BY TENS WITH K.CC.A.1

1. **COUNTING BY TENS**

   Directions: This activity can be done several times a day as it is quick and requires no materials. The objective of this lesson is to gain automaticity counting to 100 and to establish the importance of multiples of ten. The final goal of this lesson is for students to be able to count by tens and articulate the term for this.

   - For the first week of this activity have students count to 100 chorally. On each number students clap with their hands in front of them (a normal clap) and whisper the number. For each multiple of ten (10, 20, 30, etc) have students clap above their heads and say the number loudly.
   - After students are very comfortable with this routine and can effortlessly count to 100 ask students what would happen if you only counted the numbers where they clap above their heads. Students can try this out. Ask the students what we might call this (you will get answers such as “ten counting”) guide students by asking appropriate/ leading questions until they come up with the term “counting by tens” on their own.
   - Once students have graduated to counting by tens practice this skill often and quickly.

Illustrative Mathematics, Counting by Tens

2. **COUNTING WITH TEN FRAMES**
   Materials: Small ten frame cards
   Directions: This activity provides a visual representation that each ten is composed of ten ones. Students make the connection between pictorial and abstract numbers as they count. This activity can be found in Module 5 lesson 16 in the fluency practice section.
   EngageNY, Module 5, Lesson 16

3. **COUNT WITH HANDS**
   Materials: 10 Traced sets of hands
   Directions: Activity connects the visual representation of their hands and tens to count to one hundred by tens. This activity is found in Module 5 lesson 16 application problem section.
   EngageNY, Module 5, Lesson 16