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| **Stage 1: Desired Results** |
| **Learning Outcome(s)** | **Grade 3 Number**4. Estimate quantities less than 1000, using referents  |
| **Learning Objectives** | **Students will:**1. Define referent within the context of estimation.

*I can explain what a referent is, and how it relates to estimation.*1. Choose appropriate referent for given estimation task.

*I can find a good referent for the things I’m estimating.*1. Compare referent to given estimation task.

*I can use my referent to estimate the things I’m looking at.* |

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| **Stage 2: Assessment Evidence** |
| **Summative Assessment** | None | **Formative Assessment** | * Thumbs Up/Middle/Down (1,2,3)
* Estimation worksheet (2,3)
* Exit slip (1,2,3)
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| **Stage 3: Learning Experience** |
| **Prior to the Lesson** | * Have SMART presentation loaded on computer, screen warmed up
* Have stations prepared with numbers and referents
* Photocopy estimation worksheet and exit slip
 | **Resources to Bring** | * SMART presentation
* Macaroni, cotton balls, marshmallows, cereal, patterned wrapping paper (dots or squares), pennies, dinosaur toys, beans
* Have them in easy to use containers, several should have a referent already counted out
* Have stations numbered
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| **Time** | **Content/Description** | **Notes** |
| ***15 minutes*****9:35-9:50** | **Intro:*** As students are walking into class, have SMART slide up introducing activity.
* **Activity (10 min.)**: Students are given a new word and they must guess what that word might mean. The word is **referent.** Students must find a scrap piece of paper and write a short definition of what they think the word might mean.
* Teacher can use this work time to take attendance and then circulate to assist and prompt.
* **Mini Lesson (5 min.):** Explain that a referent is a tool we use for estimation. Ask for students to explain what estimation is and why we don’t want to count everything all the time (they should already know from last class). A referent is **a known amount of something to help us visualize our estimation.**
 | *Differentiation*:* Prompt students for words they might know inside this new word.
* If students finish early, have them draw a picture of what they think the word might mean.
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| ***35 minutes*****9:50-10:25** | **Body:*** **Mini Lesson (10 minutes):** Introduce learning objectives for today’s class. Show students several examples of a referent and an estimation using the SMART presentation. Have students take out whiteboard, markers and gloves to respond with estimation answers.
* Ex) Where’s Waldo – count out 20 people, estimate how many there are on the whole page
* Ex) Macaroni in a jar – show them a jar with 50 inside and a jar with many more
* Ask students what amount is the referent in each example
* *Assessment*: Have students show you thumbs up/thumbs in the middle/thumbs down to see how well they understood/how difficult they found it
* **Activity (25 minutes):** Have stations set up around macaroni, cereal, wrapping paper, pennies, cotton balls, marshmallows, bouncy balls, dinosaur toys, beans
* Have students draw a number from “the hat” (hat contains numbers 1-10) and students must begin at the station with that corresponding number. Students may move on to stations as they are finished. Be sure not to bother or bump other peoples work.
* Students must go to the station and estimate the total number of items in jar/paper/etc. Some stations will have a referent counted out, other time students will have to decide on a referent for themselves.
* Students must record their answers on their worksheet. (Both the referent and the total estimate).
* **Important**: stop 5 minutes early to clean up centers and return to seats!
 | *Key Notes:** Make sure to explain that referents don’t always have to be the same, and also don’t have to be exact.
* Give some examples where students are required to find their

*Differentiation*:* Struggling Students: Go around to students who weren’t feeling confident (thumbs) and clarify
* Depending on the student, may pair them up with another student and work together – keep an eye on these students, perhaps take some of the objects out to make counting easier
* Accelerated Students: Have several extra stations that are more challenging, more items to count, larger referent, etc. or have them come up with their own “station” to add for next year
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| ***10 minutes*****10:25-10:35** | **Closure:*** **Exit Slip (10 minutes):** Students must complete the short exit slip using the information from the SMARTboard.
* Q1: What is a referent? Explain it in your own words. Be sure to talk about what it means for estimation.
* Q2: Estimation question with referent given.
* Q3: Estimation question without referent.
* Q4: List of 3 learning objectives for today’s class. Have students rate (with smiley faces) how confident they feel about each one.
 | *Differentiation:** Read questions aloud
* When students have finished, hand in their exit slip to the box then read a book quietly
* Choose questions that are simple enough for all students to complete
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| **Reflections and Follow Up** | Next Class:* Look at student estimations and discuss why they are different. Are some of them wrong?
* Go over how to choose a good referent
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