

Enhancement Activities/Strategies for Gifted/High Ability Learners: Sample Math Learning Plan

Big Idea/ Topic

Extend Understanding of Base Ten Notation

Standard Alignment

MGSE2.NBT.1 Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: a. 100 can be thought of as a bundle of ten tens — called a “hundred.” b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).

MGSE2.NBT.2 Count within 1000; skip count by 5s, 10s, and 100s.

MGSE2.NBT.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

MGSE2.NBT.4 Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, $=$, and $<$ symbols to record the results of comparisons. Represent and interpret data.

MGSE2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.

Advanced Research

- Explore negative numbers by playing the games [Tug Harder](#) or [First Connect Three](#).
- Advanced students enjoy exploring codes. Share the story [Six Dots: A Story of Young Louis Braille](#) by Jen Bryant. Have students use the Braille system to decode a series of numbers and write them in standard, expanded, and word form in [The Six-Dot Challenge](#) task. The task may also inspire advanced students to do further research about the Braille system.
- Students can learn the basics of the Roman numeral system by trying [these activities](#). These Roman numeral [Matchstick Puzzles](#) are also good challenges once students understand the

basics of the Roman numeral system. Students can research how to write larger numbers, how the Roman numeral system was developed, and even what life was like in ancient Rome. They can also go on a virtual scavenger hunt to find images of real-life objects that use or display Roman numerals. Additional Roman number challenges for your highly-advanced students can be found [here](#).

- Have students empty their piggy banks or gather a collection of coins. Show students how they can find the year the coin was printed, then challenge students to sequence their coins in order from oldest to newest. This task may encourage further research of how coins are made what currency looks like in different countries. Another fun research challenge as students are exploring coin years is to have students create a timeline with one important historical event that happened in each of the years that are displayed on their coins. Be sure to make the connection between a timeline and a number line and how they both can be used to help us visualize the comparative values of numbers.

Communication

- Give students an equation to solve that includes two operations. Then, challenge them to write a number story or word problem that could be solved using this equation. You may even consider introducing use of parentheses in equations.
- Have students research speeds of the fastest animals. ([Here](#) is one source option, but students may enjoy finding the information on their own too.) Have students write comparison number statements. Encourage students to use a variety of operations (For example, “The cheetah’s speed is 20 mph less than the...,” “The falcon’s speed is twice as much as...”, “The horsefly is half as fast,” etc.). Students can also write incomplete comparison riddles that other classmates must use the data to answer. (For example, “Find the animal that is about twice as fast as the sailfish.”) This activity is also a great way to help students explore estimation. Creative students may even want to use this data to write fictional predator-prey stories that include accurate data.

Critical Thinking and Critical Problem-Solving Skills

- Challenge students to think critically about place value by working on these challenges:
 - (1) Use clues to find a mystery number on this [Hundred Board Puzzle](#).
 - (2) Try the Open Middle [Sums to 100](#) challenge.
 - (3) Try [Magic Square Puzzles](#) at a variety of levels.
 - (4) Challenge students to solve this [Coded Hundred Square](#) puzzle.

- Play Number Ninja to help students think critically and practice communicating mathematically. Have one student, the Number Ninja, select a 2 or 3-digit number, depending on how complex you want the game to be, and secretly write it down. Decide a set number of questions that classmates will be able to ask to try to figure out the Number Ninja’s secret. If the students do not guess the ninja’s number within the set number of questions, the Number Ninja gets a point. If they do, the class gets a point. This game is a great opportunity for the teacher to see what mathematical concepts students know and understand as they ask questions.

Creative Thinking and Creative Problem-Solving Skills

- Give students a pile of long sticks from a set of base ten blocks and challenge them to build a structure of any kind. Then have them figure out the value of their structure in hundreds. You can also have another student estimate what they think the value will be before taking the structure down to find the value. This activity will help students practice bundling tens to make hundreds in a way that is fun and creative.
- Have students find the values of classmates’ names, vocabulary words, spelling words, etc. if A=\$1, B=\$2, C=\$3, etc. You can also challenge students to try to come up with words that equal a specific dollar amount. Observe students to see what place value strategies they understand that help them add groups of numbers efficiently.
- [“Which One Doesn’t Belong?”](#) provides an opportunity for students to think creatively about numbers. Display a puzzle for students and have them make a claim about which number they think doesn’t belong and support it with evidence. It is interesting for students to see how many different answers their class can generate.
- Try the “What’s My Question” activity to help students begin to think about ways to explore numbers. To do this activity, show students an interesting picture and ask them, “What question could we ask?” The author suggests making sure to tell students they don’t have to solve it so they won’t be afraid to ask difficult questions. (Although a fun challenge as a class might be to come up with a plan to find the answer to a difficult question.) This activity also promotes curiosity and creative thinking.

Awareness of Self—Student’s Well-being

- The math-based game [Number Match](#) is a great way to help students think about the importance of responding to the needs of others and developing a sense of teamwork among your class.
- Train your students to have grit and persevere when challenges are tough. Advanced students have often been told, “You’re so smart!” so when challenges occur and they feel “not smart,” they sometimes are not sure how to handle that situation. Get in the habit of

praising students for hard work, rather than “being smart.” Train students to realize the value that “staying in the struggle” has to the learning process. These [picture books](#) can be useful stories to help prevent math anxiety in young students. [These picture books](#) help humanize mathematics for students as well.