

**TASK 1: PLANNING COMMENTARY**

Respond to the prompts below (**no more than 9 single-spaced pages, including prompts**) by typing your responses within the brackets. Do not delete or alter the prompts. Pages exceeding the maximum will not be scored.

**1. Central Focus**

- a. Describe the central focus and purpose of the content you will teach in the learning segment.

[ The central focus of the segment is place value. Students will acquire a solid number sense by playing games and manipulating numbers in a variety of ways to see how those numbers are built, and what components are in different numbers up to 99. The purpose of this is to create a solid foundation in order to teach greater than, less than, and equal to. Students must know place value and be able to know which is larger based on the knowledge gained in these lessons. Then students will be able to apply the  $<$ ,  $>$ , and  $=$  signs more easily. ]

- b. Given the central focus, describe how the standards and learning objectives within your learning segment address

- conceptual understanding,
- procedural fluency, **AND**
- mathematical reasoning or problem-solving skills.

[ Conceptual understanding- students are developing a solid number sense, and the lessons help students understand the concept by presenting the idea of ones and tens in a variety of ways, as well as how they're grouped, so students can analyze any number. This knowledge can be applied to a variety of activities because students will truly understand what goes into numbers.

Procedural fluency- Students practice the material in a variety of ways until the concept is understood. By completing these activities, students should be able to break down and compare any number between 0 and 99. With ample practice during these lessons and in future lessons geared toward the standard of comparing numbers, students will be able to do it automatically.

Problem-solving skills- If students understand why and how base 10 works and are able to manipulate and compare numbers as a result, then they can use that knowledge to figure out other concepts such as numbers with three place values. ]

- c. Explain how your plans build on each other to help students make connections between

- concepts,
- computations/procedures, **AND**
- mathematical reasoning or problem-solving strategies

to build understanding of mathematics.

[The first lesson with zürkle to three shows students how numbers are grouped, but on a smaller scale than 10. Experimenting with base 3 gives students an opportunity to think more about place value and understand how numbers can be grouped together. Once students are solid on zürkle to three, they will begin to play zürkle to ten. The teacher will explain how we choose to group numbers in this way, although some other cultures think about numbers in different ways. Grouping to ten is the standard for global science.

The second lesson continues with zurlke to ten, adding one number at a time as done in lesson one. This gives students a little bit of a refresher and gives more practice to help acquire procedural fluency. Students will then move on to roll a die and add the number of cubes as shown on the die. In this way, students still have to understand that the beans are only group in 10s. Students may already have 9 in the ones, but if they roll a 5 they still only transfer a group of 10, making it one group of 10 and 4 ones. This also ties into the addition they've been working on in class and will make those concepts more solid as well.

Lesson three adds numbers to represent what they have on the board. Students will start adding one number at a time and will work with the teacher to determine how many ones there are and how many groups of ten there are. The teacher will represent the amount as a number so students can see how the manipulatives transfer to symbols. Also in this lesson, students will work with breaking numbers down to further understand how the symbols represent the manipulatives.

Lesson four takes all of the knowledge gained in the first three lessons and asks students to work with symbolic numbers even more. With the foundation gained through using manipulatives, students should be able to understand how numbers work and be able to represent it numerically through these lessons.

In general, the lessons build off of each other toward more complex concepts that will eventually be represented using numbers. By the time these lessons are over, students should be able to compare numbers, which is one of the major standards that first grade focuses on. ]

## 2. Knowledge of Students to Inform Teaching

For each of the prompts below (2a–c), describe what you know about **your** students **with respect to the central focus** of the learning segment.

Consider the variety of learners in your class who may require different strategies/support (e.g., students with IEPs or 504 plans, English language learners, struggling readers, underperforming students or those with gaps in academic knowledge, and/or gifted students).

- a. Prior academic learning and prerequisite skills related to the central focus—**Cite evidence of what students know, what they can do, and what they are still learning to do.**

[All students in the learning segment have already been exposed to place value during calendar and have been slowly working toward understanding. However, students do not have an understanding of the base 10 system; this is a great area of confusion, and it has not yet been explicitly taught. As such, the game focuses on presenting the material in base 3 first so students can gain understanding of grouping numbers appropriately, then students will move onto base 10. In each lesson, the first part focuses on the game and base 10, while the second part focuses on breaking down numbers/using strategies to sort numbers appropriately. They have been working on these concepts in the teen numbers, but have yet to apply that knowledge to numbers 20-99. The students in this particular group are students of an advanced number sense, and the focus is to present the material in a variety of ways so students gain a strong number sense, and so the strategies can be applied when working with bigger numbers. ]

- b. Personal, cultural, and community assets related to the central focus—**What do you know about your students’ everyday experiences, cultural and language backgrounds and practices, and interests?**

[ This particular group of students are high-achieving and are ahead in reading and math. Some are a full grade level ahead in literacy. They are always working hard in class, completing all of their work. Some are more outspoken than others and they all approach the material in a different way. However, they all enjoy playing games, so they should enjoy zirkle. They all speak English as their native language. They also all live in a rural, ranch-owner setting. They generally have a lot of experience outside and have a stronger understanding of the biological and environmental sciences than physical sciences. ]

- c. Mathematical dispositions related to the central focus—**What do you know about the extent to which your students**

- **perceive mathematics as “sensible, useful, and worthwhile”<sup>1</sup>**
- **persist in applying mathematics to solve problems**
- **believe in their own ability to learn mathematics**

[ These students generally understand the importance of math, and one has expressed her love for math in the past. One particular student may not see the value as much as the others, but she still does the work and excels in understanding the concepts. They may not see the value as much as students from a rich technological community full of physical science concepts. Rather, these students are solid in understanding the outdoors, and like to see how the material can be applied to their own lives. ]

### 3. Supporting Students’ Mathematics Learning

Respond to prompts below (3a–c). To support your justifications, refer to the instructional materials and lesson plans you have included as part of Planning

**Task 1. In addition, use principles from research and/or theory to support your justifications.**

- a. Justify how your understanding of your students’ prior academic learning; personal, cultural, and community assets; and mathematical dispositions (from prompts 2a–c above) guided your choice or adaptation of learning tasks and materials. Be explicit about the connections between the learning tasks and students’ prior academic learning, their assets, their mathematical dispositions, and research/theory.

[ Because these students are high-achieving, I require a lot of them from the 15 minute time frame. I also modified lessons two and three to include rolling a die and adding more than one number at a time. This modification makes the activity more demanding, which will challenge this group of students. In addition to learning place value, they are also expected to explore how adding numbers might affect the number of 10s and 1s. These students are already generally solid in their ability to add within teen numbers, so this activity should help solidify the idea of moving place values as numbers are added so they can apply this material when they begin to add larger numbers. In addition, each lesson comes with additional enrichment activities that students can do if there is extra time or to just extend their knowledge/allow them to practice more to develop fluency. ]

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<sup>1</sup> From the Common Core State Standards for Mathematics

- b. Describe and justify why your instructional strategies and planned supports are appropriate for **the whole class, individuals, and/or groups of students with specific learning needs**.

Consider the variety of learners in your class who may require different strategies/support (e.g., students with IEPs or 504 plans, English language learners, struggling readers, underperforming students or those with gaps in academic knowledge, and/or gifted students).

[The individuals in this group require more difficult material, so the demands in each lesson are higher than some of the other groups. They are required to look at the materials in a variety of ways to gain a more complete understanding. ]

- c. Describe common mathematical preconceptions, errors, or misunderstandings within your central focus and how you will address them.

[Students regularly switch numbers, so if they're trying to write 41, for example, they may write 14. This shows that they don't understand the difference between ones and tens, so the game zurkle, along with the hand movements while saying the numbers, should help students understand that numbers are read left to right, and that the higher values are on the left. It also gives them an understanding of why numbers are defined the way they are, so the next time they write a number they will hopefully think about what the symbol actually consists of and check their work as they go. ]

#### 4. Supporting Mathematics Development Through Language

As you respond to prompts 4a–d, consider the range of students' language assets and needs—what do students already know, what are they struggling with, and/or what is new to them?

- a. **Language Function.** Using information about your students' language assets and needs, identify **one** language function essential for students to develop conceptual understanding, procedural fluency, mathematical reasoning, or problem-solving skills within your central focus. Listed below are some sample language functions. You may choose one of these or another language function more appropriate for your learning segment:

Categorize	Compare/contrast	Describe	Interpret	Justify
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Please see additional examples and non-examples of language functions in the glossary.

[ Students must compare numbers and place values to understand how to make up numbers. ]

- b. Identify a key learning task from your plans that provides students with opportunities to practice using the language function identified above. Identify the lesson in which the learning task occurs. (Give lesson day/number.)

[ In lesson four, students will practice comparing numbers using the skills they developed to put numbers in order. These lessons are the prerequisite for upcoming lessons of greater than, less than, and equal to. Students must first understand how to construct numbers and that numbers represent something. ]

- c. **Additional Language Demands.** Given the language function and learning task identified above, describe the following associated language demands (written or oral) students need to understand and/or use:
- Vocabulary and/or symbols
  - **Plus** at least one of the following:
    - Syntax
    - Discourse

[Students will need to understand and be able to use the following vocabulary within context: place value, base 10, compare, tens place, ones place. ]

- d. **Language Supports.** Refer to your lesson plans and instructional materials as needed in your response to the prompt.
- Identify and describe the planned instructional supports (during and/or prior to the learning task) to help students understand, develop, and use the identified language demands (vocabulary and/or symbols, function, discourse, syntax).

[ The vocabulary will be used multiple times and the skills associated with it will be practiced in context. In addition, in lesson one the teacher will explain the concept of base 10 so students will understand the phrase within context of the game. ]

## 5. Monitoring Student Learning

In response to the prompts below, refer to the assessments you will submit as part of the materials for Planning Task 1.

- a. Describe how your planned formal and informal assessments will provide direct evidence of students' conceptual understanding, computational/procedural fluency, **AND** mathematical reasoning or problem-solving skills **throughout** the learning segment.

[ Conceptual understanding: There are questions that ask specifically about their knowledge of place value and numbers in the tens and ones places.

Computational/procedural fluency: There are several questions on the assessment for students to show that they can apply the knowledge multiple times. This also comes in heavily from the teacher's informal observations during the activities. The teacher will not move onto the next activity until students are moderately fluent in the activity they are working on.

Mathematical reasoning/problem solving skills: Students must demonstrate their knowledge in a variety of ways on the assessment. Although students did not practice the concepts specifically as the questions ask on the assessment, students should be able to apply the knowledge they gained to figure out how to answer the questions. ]

- b. Explain how the design or adaptation of your planned assessments allows students with specific needs to demonstrate their learning.

Consider the variety of learners in your class who may require different strategies/support (e.g., students with IEPs or 504 plans, English language learners, struggling readers, underperforming students or those with gaps in academic knowledge, and/or gifted students).

[ The gifted students in this group will need to use the knowledge they gained to show their knowledge in a variety of ways in the assessment. Students must compare numbers and

break numbers down to show the teacher that they know the components of each number. They also have the ability to stretch their knowledge to problem solve for the bonus question. This goes beyond the standard and helps the teacher understand what they are capable of solving in this topic. ]