

Full STEAM Ahead!

February, 2020

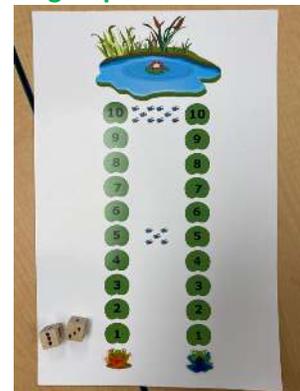


What Will We Be Doing?

- Hello teachers! This month's newsletter is all about **Cooperative Math Games!** Around this time of year, we seem to be stuck inside a lot and the kids can start to be a bit agitated. Having them work together to accomplish a common goal, while working in some math, will hopefully help this. This may also be the time of year when some of our younger friends start to move more into cooperative play as opposed to independent or parallel, but may not be sure how to do that. Playing a game together is a great way to help those new relationships along.
- The games described will help the students not only learn to work together, but it will give them more practice with the **Counting/Cardinality Math Concept** in a fun way.
- The Counting/Cardinality Concept in the simplest terms answers the question of *how many?*
- This concept also deals with **subitizing** (knowing a quantity instantly without having to count and "check") and **creating Number Sense**.
- The **five principles that work together to create Number Sense are the:**
 - **Stable Order Principle** – numerals are always said in the same order when counting a set.
 - **One-to-One Tagging Principle** – one number is named each time you point to an item in a set.
 - **Order Irrelevance Principle** – no matter what order the items in a set are counted in, the number is always the same (count in a line, in a circle, in a pile...always get the same number).
 - **Cardinality Principle** – final number named is the quantity of the set.
 - **Abstraction Principle** – anything can be counted.
- These cooperatives games will help the students to continue to develop strong Number Sense and will also help you see what kind of progress your students have made with this concept.
- All of these games can be scaled up or back in many different ways. If there's a game you'd like your class to try and aren't sure how to scale it, just ask!

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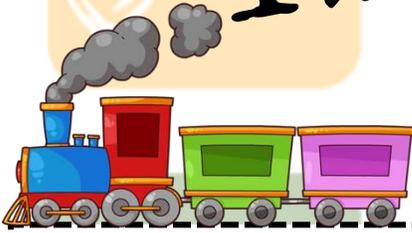
- **Lesson 1: Cookie Share**
 - This game helps students learn to "equipartition", which is just learning to share things equally.
 - We have 4 sets prepped and full directions are in each bag.
 - Each bag contains four characters and eight cookies. You can use 2, 3, or all 4 characters and ask your group of students to help you decide each time how many cookies each person should have in order for there to be equal sharing. Some students will probably enjoy making up their own stories for how to share the cookies.
- **Lesson 2: Frog Hop**



- This game helps students with their subitizing of numbers 1, 2, and 3 as each die is only numbered 1-3. For older students, you can use more than one die at a time and see if they can subitize and add!
- We have 9 sets of this game prepped. Each board is set up with two paths, so you can decide just how cooperative you want this game to be. You could just use one of the paths to eliminate competition, or make teams.
- However you decide to play, let each student have a turn to roll the die or dice and figure out what number they rolled. Then let them move one of the frogs along the path.

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What Will We Be Doing?

• Lesson 3: Path Games

- Path Games are great for adapting to any theme you're doing! Dice are your friend ☺
- **Blast Off!**
 - First, have the students help you set it up by putting the stars in order from 10 to 1 (it is blast off, so you'll be going through the numbers backwards). Stars are made for numerals, tally marks, and ten frames. You can choose which set of stars you'd like to use, or trying setting out the numerals and then have the students match the correct tally marks and ten frames to them.
 - Try this with 2 astronauts (jumpers) and 2 at "mission control" (rollers).
 - Let the rollers take turns rolling the die. You can write on our whiteboard dice (we have 4), use the fuzzy dice, the large green die, or use the die from the Frog Hop. When one student rolls, have the astronauts jump that many spaces while all counting out loud together.
 - To make this game *more challenging*, try having a die with numbers/dots/tally marks and one with a plus sign and minus sign. Roll each die and if they get a plus sign, jump forward that many spaces. If they get a minus sign, have them jump backwards that many spaces.



- *To scale back*, arrange the stars in order 1-10 and count out loud as they jump from star to star.
- Once they make it past the star with number 1, let them yell Blast Off and jump as high as they can ☺
- Spread the stars out as far as you need to for as physically challenging as you'd like the game to be.

2s Team

- *Some form of Frog Hop and Blast Off!* should be accessible to many of the 2s, and *possibly Cookie Share*. They should also enjoy all the moving in Blast Off!
- The focus for 2s should be to see if they can *see and know numbers 1 and 2*.

3s Team

- All of these games should be accessible for the majority of the 3s. Some may even be ready to scale up games like Frog Hop and Blast Off!
- The focus for 3s should be to *see if they can easily subitize numbers 1-3*.

Pre-K Team

- Most Pre-K students should be able to do the *scaled-up versions* of each of these games, like *subitizing two die* together in Frog Hop and possibly using addition and subtraction in Blast Off!
- The focus for Pre-K should be to help them *subitize some of the larger numbers*.