**Grade:** Junior (4-6)

**WEEK 5 – 21 and Out**

**Unit:** Data

**Curriculum Expectation**
use fractions to express the probability of events happening.

**SEL:** express and manage their feelings, and show understanding of the feelings of others, as they engage positively in mathematics activities

**Activity
1)** Students will use one 6 sided die to roll attempting to get as close to 21 as possible without going over  **2)** With their first set of roles students will keep their numbers and add all of their numbers together and recording them on a separate sheet of paper.
**3)** Once the total of the rolls is higher than 15, students will use the probability sheet below to record the probability of their roles being under, over or at 21 before their role, determining based on probability whether it is in their best interest to role again
**4)** Once students have decided to stop rolling, they will use the score sheet to record their final scores. If under 21, students score will be the difference between their score and 21. If over 21, students will add 7 to their scores.
**5)** Students can compete against a parent or sibling with their score, or they could compete against their own personal best score! Lowest score wins!
6) Reflect on your experience with this game. Was it frustrating when you did not roll the number you expected? What about when you took a chance and won?
**Note:** If students do not have any dice, they can instead write the numbers 1-6 on paper and cut the paper up, putting each sheet in a hat or bag and drawing the numbers at random to simulate the 1/6 chance of rolling dice.

**Check for Understanding**
I can determine the probability of rolling a range of numbers with one die
I can represent the probability of rolling a die of with fractions
I can make decisions based on probability

**Materials**
Recording sheet (attached below), pencil, dice, sense of probability

**21 and Out Over 15 Probability Sheet**

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| --- | --- | --- | --- | --- |
| **What is the difference between my role and 21?** | **As a fraction, what are the odds that if I role I stay below 21?** | **As a fraction, what are the odds that if I role I get 21?** | **As a fraction, what are the odds that if I role I go over 21?** | **Are you stopping this turn (Yes or No)?** |
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**21 and Out Score Sheet**

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| --- | --- | --- |
| **My final score** | **Over or under 21 (and difference if under)**  | **Total points** |
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