LAHAL (SLAHAL) – A FIRST NATIONS PROBABILITY GAME

Grades 4-7 Math/Social Studies

First Peoples Principles of Learning:

* Learning ultimately supports the well-being of the self, the family, the community, the land, the spirits, and the ancestors.
* Learning is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place).
* Learning involves recognizing the consequences of one’s actions.
* Learning involves generational roles and responsibilities.
* Learning recognizes the role of indigenous knowledge.
* Learning is embedded in memory, history, and story.

Grade 4-7 Math Competencies:

* Use reasoning and logic to explore, analyze, and apply mathematical ideas
* Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures
* Explain and justify mathematical ideas and decisions
* Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts

Grade 4/5 Math and Social Studies Content:

* Probability experiments
* Comparing fractions
* The impact of colonization on First Peoples societies in British Columbia and Canada
* The history of the local community and of local First Peoples communities

Grade 6 Math and Social Studies Content:

* Theoretical and experimental single-outcome probability
* Percent calculations
* Explore different systems of government

Grade 7 Math and Social Studies Content:

* Theoretical and experimental single-outcome probability
* Relationship between decimals, fractions and percent
* Interactions and exchanges between past civilizations and cultures, including conflict, peace, trade, expansion, and migration

This lesson takes a minimum of two 40-minute lessons but could be extended longer to explore more deeply the social studies content and/or the math.

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| **LESSON SEQUENCE** | **THINKING BEHIND** |
| **Goals:**   1. To learn about the history and cultural significance of the First Nations game Lahal 2. To understand how theoretical and experimental probability are similar and different 3. To use the data from the game to: create and compare fractions, decimals and percentages | This lesson combines some non-math content areas (like Social Studies and even Language Arts) in an effort to learn more about First Nations history and culture. The mathematical ideas will be probability and depending on the grade level you are teaching, you may explore: fractions, decimals and percentages. |
| **Introduction:**  1) Write these 3 guiding questions on the board and let students know that they will be discussing these when the video is finished. I let them know that they are watching for the following:  When was Lahal first played? For what reason?  When and why has Lahal been played in the past and the present?  Why is it culturally important to learn to play Lahal?  Watch the video (10 minutes):  <https://www.youtube.com/watch?v=_BBHge8wzR0>  In partners discuss each of the questions above and share out  ***The essential questions are:***  ***Why is it culturally important to learn to play Lahal and other games from different cultures?*** (Social Studies)  ***Explain probability and how probability is related to fractions*** (Math) | Because I am a non-indigenous teacher, I like to use this video so that the information about First Nations culture and history are being presented in a more authentic way. It is also a nice way to allow students to see how the game is played in an authentic way.  I do let students know a couple of ground rules for our games:  1) we will NOT be gambling because it’s not allowed in school  2) we will not be doing ‘fake outs’ as described in the video until we are well practiced and everyone knows how to play (you may decide to not ever allow ‘fake outs’)  Lahal was first played 2000-3000 years ago when neighboring nations were fighting over boundaries. They used different games to settle their disputes.  There are so many non-math related directions you could go with this information alone! |
| **Processing:**  After the video is complete put the students into 2 teams.  Ask team 1 to be on one side of the room and team 2 to be on the other.  Set 5 chairs on each side (so 10 chairs in total) facing each other (as you see on the video).  Then show them the 4 places the ‘white bones’ can be: Left, Right, Inside, Outside. It is really important to realize that ‘left’ refers to the bone holder’s left (not the left of the shooter/chooser). You can laminate the attached poster and put two on the ground in front of each team to support them.  See detailed instructions on the attached sheet.  Lastly, before you begin, two players from each team must keep track of the guesses and actual outcomes (both sheets will be identical – it is a way to ensure accurate results). These score sheets are underneath the posters in the attached document.  Once a few rounds have been played, you may wish to add the music and students are welcome to tap sticks, clap, etc.  I like to ask them at this point if they think this is a game of skill or chance and what the probability of winning the ‘bones’ is. It’s a predication for younger students but older students might demonstrate their knowledge of probability. | Once they know how to play you could have 2 games going at the same time so all are playing but for the first time I suggest only playing one game.  You can have 3-7 players per team playing at once, but the standard is 5 players. Also there doesn’t need to be the same number of players on each side. Position students close enough to be able to pass the ‘bones’ and sticks back and forth.  This needs to be shown a few times and many students might not ‘get it’ until they start playing. I suggest doing a practice round to show all the possibilities and the result of each. There are many variations of this game as it was used by many different groups of peoples and so this is one version. If you have students who know the game and play a different version, play theirs!  You can ‘sub’ in students after one team wins a round or after 5-7 minutes of play so that they all had a chance to play.  Knowing lefts from rights (of the opposite player) can be very challenging for them – they need to use the left and right of the bone holders (not the shooters).  One student as the announcer helps with this task. So, for example, they might say ‘guess is left, actual is outside’. You may need to be the announcer first to model. |
| **Transforming:**  Discussion Questions in groups:  a) What is probability? What other words can we use to describe probability?  b) What probability games do you play or know about?  c) What are some games that you play in your culture (this includes your familial culture). Discuss if you think they are games of skill, chance or both and why.  d) Why are games important in different cultures?  e) How has colonialization affected the playing of Lahal?  f) How is Lahal related to decision making and policies?  Grades 4/5:  1) Find the experimental probability of each outcome using the data you collected:  Both white, one white, both taped  2) In groups ask students to determine each value and discuss which had the most and least outcomes and if the results surprised them in any way (and explain why).  3) You can also compare and order the various fractions you get from the data sheets (especially if you have more than one game going on at a time) such as: how many times was ‘right’ guessed and how often was it actually ‘right’? Do this for all the guesses and actual outcomes and search for patterns. Which guess was most common? Which was least common? Which actual outcome was most common? Etc.  4) Ask students to determine how many of each outcome they would expect to see and why (note: theoretical probability is not introduced until grade 6 but that doesn’t mean you can’t explore the concept at this point – you can use a chart or tree diagram to map out the possible outcomes). At this point you could also connect this to other games of chance (or something as simple as flipping a coin) and determine what is more/less likely to occur.  Grade 6/7:  1) Ask students to determine the theoretical probability of getting both white bones, one white bone, both taped bones. Use a chart or tree diagram to model the possible outcomes.  2) Use the data from the sheets to:  Compare the theoretical probability with experimental probability – which has more, by how much? Why?  3) Given the number of rounds played (for example 30), how many times would you expect both white bones to be chosen (a fourth of 30 is about 7 or 8), explain your thinking.  4) Find the fractions of each of the guess and then the fractions of each of the actual outcomes and compare  5) Do the same as above but turn the values into percentages and/or decimals and discuss which format is easier to compare in and why. | You will likely not have time to any of this in the same lesson but you can carry on during the next day. You may also want to play enough rounds to make the denominator ‘friendly’ (like 20, or 25)  Many students think every outcome has 50% so you can guide them by asking ‘how many outcomes are there?’. You can also start with flipping two coins and looked at those outcomes and then relate  As you play more games you may also compare the data from various games. If you wanted to play MANY games (over the course of the year) you could keep a running total to see how the experimental probability shifts as more games are played. As more games are played the practical probability starts to become closer to the theoretical probability.  Students can work in small groups to compare their guess and actual outcomes and in doing so this may affect how they play in the future (if they find that certain guesses were less common). This can lead to interesting discussions about how much control we have in games of chance. This would also be a good time to discuss the ‘fake outs’ and how using these affect the probability of the game.  Assessment Task Grade 4/5:  Write to explain what experimental probability is and how we use fractions in probability. How do we know if something is more or less likely? Use examples from your data to help in your explanation. What are 3 things you learned from these lessons? What are 2 questions you still have or that you’re wondering about related to Lahal or the math?  Assessment Task Grade 4/5:  Write to explain what experimental and theoretical probability are and how they are connected. How do we use fractions and probability to play games of chance? Use examples from your data to help in your explanation. What are 3 things you learned from these lessons? What are 2 questions you still have or that you’re wondering about related to Lahal or the math? |
| **Reflection:**  **1)** What do you think is the most important cultural aspect of Lahal? Why?  2) Is Lahal a game of chance or skill – explain your thinking | You may want to do the first reflection only for the first lesson and then you can use the other after the next lesson when they’ve more opportunity to understand probability. |

**Lahal Rules**

Each team starts with 5 sticks. The ultimate goal is to win all the sticks. One team starts with control of the bones (rock-paper-scissors). They take turns with the bones. Two students put one white (plain) and one marked bone in each hand and then mix them up behind their backs so the other team can’t see where the plain bone is.

Both students put their hands out with arms extended and ensuring the bones are completely hidden in their hands:



(They don’t need to be sitting next to each other)

Then one shooter (this is what they call it in the video but some teachers prefer ‘chooser’) gives their hand signal to indicate their guess, with the goal of guessing where BOTH white bones are.

The announcer (you to start) says “the guess is\_\_\_\_” so that the recorders can mark it down. The two students open all 4 hands and then the announcer says “the actual is \_\_\_\_\_”

There are three possible outcomes:

1. They guess both correctly 🡪 they win control of the bones (NO STICKS are given). This means the other team is now in a position to lose sticks so teams want possession of the bones.
2. They guess ONE correct and one wrong 🡪 the chooser must give the other team 1stick
3. They guess both incorrectly🡪 the chooser must give the other team 2 sticks.

Students play until one team wins all the sticks. Then they start again and continue until you decide to stop (keeping track of how many games each team has won) and subbing in other students so they all get a chance to hold bones, choose, score keep etc.

There is a cassette tape (yes, really) that is part of a kit from SD61 but here are some sites for free Online Lahal Music:

<http://www.firstvoices.com/en/Kwakwala/song/flash/fd200aee1064ca13/Bone+Game>

<https://www.youtube.com/watch?v=UbaRJhM5Iik>

<https://www.youtube.com/watch?v=neuHgJhgF_k>

<http://www.landoftheshuswap.com/songs.html>

References:

<http://www.skeetchestn.ca/lahal>

<https://www.youtube.com/watch?v=HC03dES7Btg>

<https://hashilthsa.com/news/2018-08-13/intuitiveness-perception-key-game-lahal>





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| Hand Gesture | Meaning |
| Image result for hand point right | Both UNMARKED bones are in the left hands |
| Image result for hand point right | Both UNMARKED bones are in the right hands |
| Image result for hand point down | The UNMARKED bones are in the “inside” hands |
| Image result for thumb and pointer finger | The UNMARKED bones are in the “outside” hands |

**Lahal (Slahal) Game**

Guess BOTH UNMARKED ‘bones’ = you get the bones

Guess ONE UNMARKED ‘bone’ = you give one stick to the other team

Guess NEITHER UNMARKED ‘bones’ = you give two sticks to the other team

We play until one team has all the sticks and the team with all the sticks wins.

L= left R = right I = inside O= outside (from the perspective of the bone holders)

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Rubric Note: I’ve been working with colleagues on this and we are trying out a rubric where we only supply the fully meeting and then we can fill in the other boxes as needed when we are assessing. Students are finding this WAY more helpful than previous rubrics (too much information for them I think) and we feel that when we don’t dictate what is exceeding, it occurs more authentically and more often.

Grade 4/5:

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| Not Yet Meeting Expectations | Fully Meeting Expectations | Exceeded Expectations |
|  | I can clearly explain what probability means |  |
|  | I can explain how we use fractions in probability |  |
|  | I can compare probabilities from Lahal and determine what outcomes are more/less likely |  |
|  | I understand the what games of chance are |  |
|  | I can reflect on my learning and share new learning and questions related to Lahal |  |

Grade 6/7:

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| Not Yet Meeting Expectations | Fully Meeting Expectations | Exceeded Expectations |
|  | I can clearly explain what experimental and theoretical probability are |  |
|  | I can explain what is similar and different between experimental and theoretical probability |  |
|  | I can explain how we use fractions in probability |  |
|  | I can compare probabilities from Lahal and determine what outcomes are more/less likely |  |
|  | I can predict how many outcomes there theoretically could be for Lahal given the number of rounds |  |
|  | I can reflect on my learning and share new learning and questions related to Lahal |  |