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Probability- 50/50 Chance

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TI- 84 Lesson Plan

Christopher Sheffer

50/50 chance lab

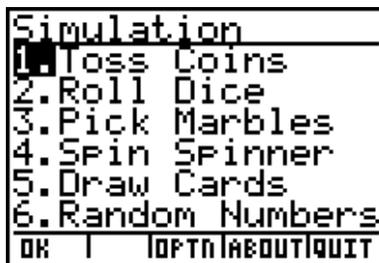
Assessing prior knowledge/Beginning the lesson:

This lesson will model both kinesthetically and with a TI model the probability of a child being born a male or a female. It will further be used to explain why a family with several children may not show the expected 50/50 relationship that would be expected. Prior knowledge will be assessed through a question and answer session which will begin with questions involving probabilities related to flipping a coin and how this could be a useful model when looking at the probability of a child being born a male or a female. The session will end with the question of why a family can have a mix of children which are not a 50/50 mix. This in general is the question that students are unable to answer at this level (grade 8).

The lab

The students will follow the procedure outlined to begin the lab. This portion of the lab will not involve use of the TI-84.

1. Each group of students will receive a coin. Heads will represent a boy and tails will represent a girl.
2. The coin will be flipped six times to represent the children in one family. The sex of each child will be recorded in a table.
3. The same process will be repeated 10 times to represent children in ten families.
4. A second chart will tally the number of families with a given distribution of children: i.e.: 3 boys/3 girls, 4 boys/ 2 girls, 5 boys/1 girl, etc.
5. The students will then develop a graph based upon the family data. This data should give a bell curve but often does not because of the limited number of families represented. Instead of trying to explain if what would happen if we had time to flip coins enough times to represent hundreds or thousands of children we will use the TI-84 to collect this data.
6. The students will be directed to the probability simulator and the coin flipping



7. The students will then set the generator to a trial set of 100 flips.
8. Students will then flip the coin 1000 times in increments of 100.
9. They will compare this data (table/graph) with the data collected during the actual coin tossing to see if they are closer to a 50/50 distribution of children.

(A software note: It appears you are unable to acquire screenshots in the application. I did attempt to acquire screenshots for this plan but was unable to acquire shots beyond the screen shown above.)

10. Students will then answer a series of questions related to the data collected.
11. The final step will be a presentation to the class (in groups) discussing their interpretation of the data they collected.

Assessment:

Students will be assessed using the following rubric

Target	Acceptable	Unacceptable
Graphs are neat, accurate and labeled correctly.	Graphs are readable and missing no more than 1 label	Graphs are sloppy and missing correct labels
Presentation is accurate and includes readable and interesting visuals	Presentation has minor inaccuracies and visuals	Presentation data is inaccurate with no visuals.
Presenters accurately explain data and model	Minor errors in data or model interpretation	Data is not explained and lacks an explanation of the model.
All questions related to data have been correctly answered.	No more than two questions answered incorrectly	More than two questions answered incorrectly.
All group members participate in presentation	One group member does not participate in presentation.	More than one group member is does not participate in presentation.