Using Board Games to Teach Probability to Middle School Students

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Objectives

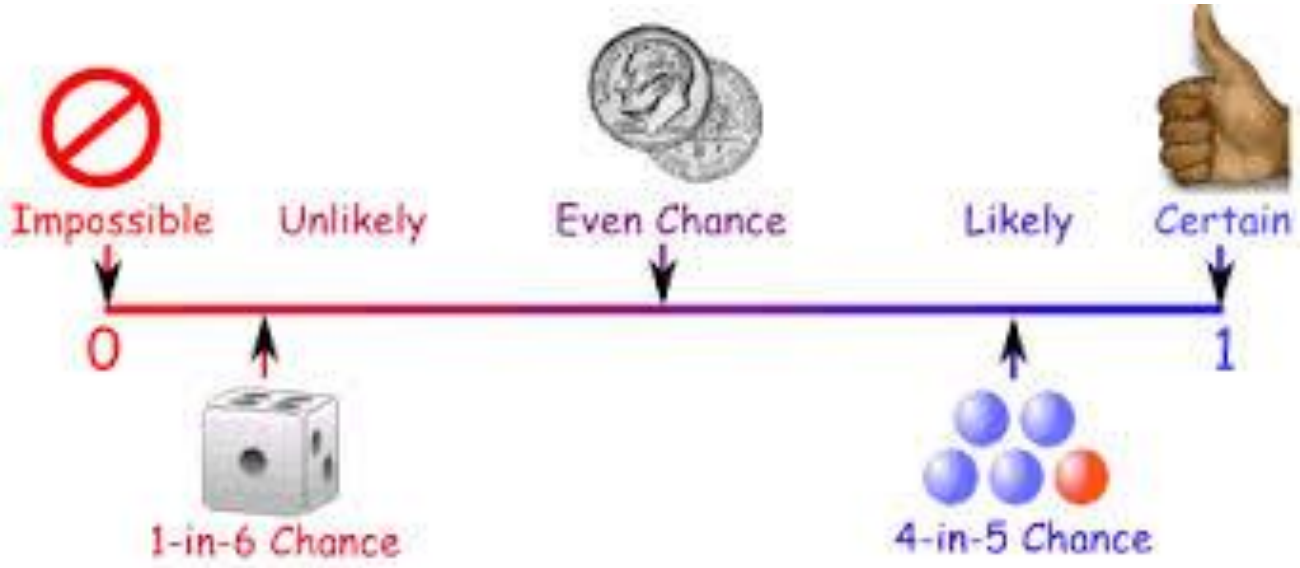
- CCSS.MATH.CONTENT.7.SP.C.6
  Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability.
- CCSS.MATH.CONTENT.7.SP.C.7
  Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.

Materials

- The Game of Life
- Candyland
- Twister
- Other games (Trouble, Chutes and Ladders, Monopoly)
- Record sheets

Review

- Review that probability is between 0 and 1
- Close to 0 is not likely and close 1 is very likely



Opening Lesson

- Discuss each game and the probabilities involved
- Have record sheets for each game
- Divide students up
- Explain how to record all of the moves
- These may be done the day before or at group tables

The Game of Life Probabilities

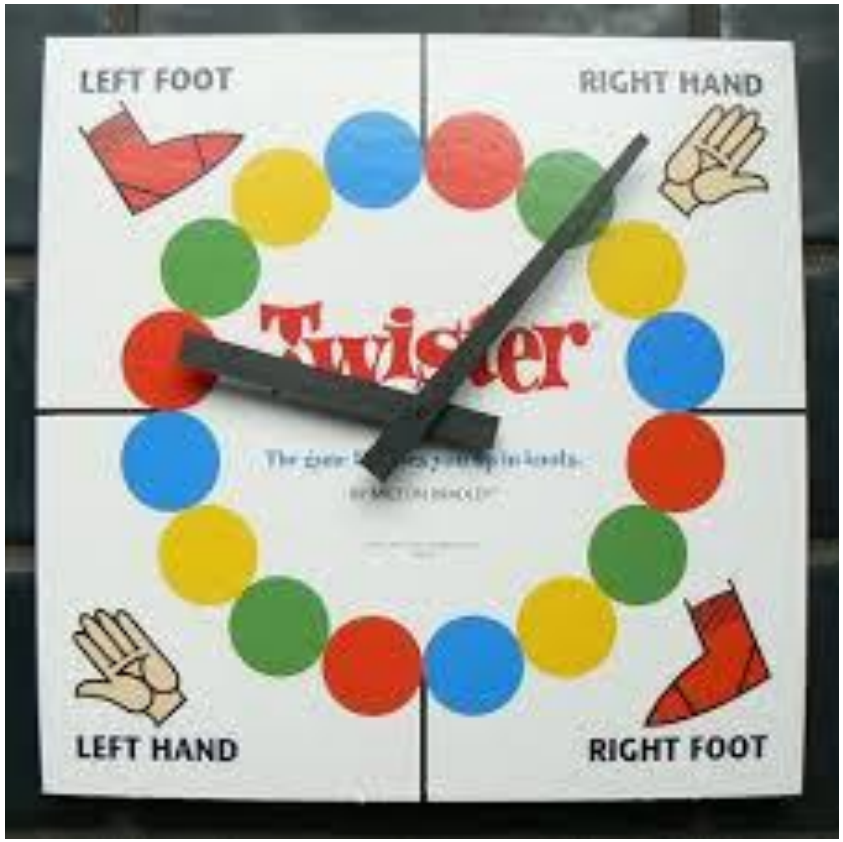
- Spinner (0-10)
- Salary ($10,000 - $100,000)
- LIFE tiles collected/spaces
- Kids/spaces

Candyland Probabilities

- Colors landed on
- Color cards drawn
- Characters

Twister Probabilities

- Colors
- Hands vs. feet
- Right vs. left
- Circles used on mat



Compare

- Look at probability hypotheses for the games
- Compare these to the observed frequencies
- How close were they? If they weren't close, why?

Next Day

- Make graphs of the data
- Switch and play different games
- May have to continue the game the next day

Homework

- 5 word problems involving board game probability

Why Board Games?

- Chance events
- Independent and dependent events can be discussed
- Conditional probability can be used
- Student generated results
- Connection to the real world