Baseball Statistics

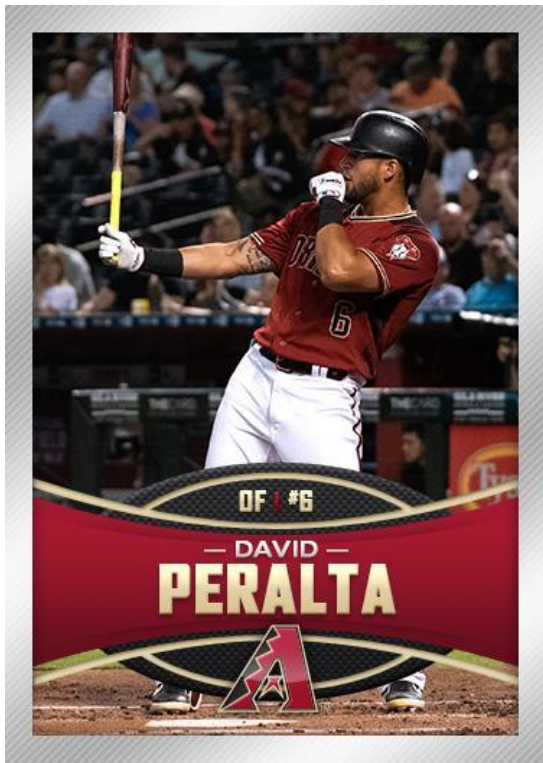| Activity	Time	Description
Activity 1 Baseball Cards and Batting Average Simulation	40 minutes	You will explore baseball cards and learn about important baseball statistics such as batting average. Next, you will roll a dice to simulate batting average and then record your batting average as a fraction, decimal and a percent.
Activity 2 Learning from Mistakes	20 minutes	You will reflect on mistakes you have made recently, and learn about how mistakes make your brain grow!

Session 2

Baseball Statistics

Growing Mathletes

Baseball Statistics

I've missed more than 9,000 shots in my career. I've lost almost 300 games. 26 times, I've been trusted to take the game-winning shot and missed. I've failed over and over and over again in my life. And that is why I succeed.
-Michael Jordan

What does this quote mean to you?
What message is Michael Jordan trying to send?

DAVID PERALTA | OF #6

Ht: 6'3 Wt: 245 Bats: Right Throws: Right
Born: 8-14-87, Valencia, Venezuela

Signed by D-backs as a Minor League free agent (July 3, 2013). He and his wife, Jordan, welcomed their first child, Sofia, on Aug. 14, 2017, also David's 30th birthday. Has a cat named Maximus. Named after a character from his favorite movie, "Gladiator."

YR	TEAM	G	AB	R	H	2B	3B	HR	RBI	SB	BB	SO	SLG	AVG
15	D-BACKS	109	462	61	144	26	9	8	78	6	44	107	.450	.312
16	D-BACKS	159	567	103	182	38	2	33	110	21	118	151	.570	.321
17	D-BACKS	158	579	106	172	33	3	24	95	32	110	150	.489	.297
18	D-BACKS	155	558	117	166	34	3	36	120	18	94	147	.563	.297
MLB TOTALS 2013-2018		578	2080	288	614	110	32	74	277	29	159	433	.486	.293

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OF | #6
— DAVID —
PERALTA

Look at your baseball card for a FIELD PLAYER.
- Can you find the player's team?
- Can you find the player's position?
- What other important information do you see on the card?
- Share what you notice with a partner.

Activity 1

Reading the Back of a Baseball Card

AB means "AT BATS"
This is the number of times the player comes to the plate to try to hit the ball.

H means "HITS"
This is the number of times the player hit the ball and did not get out.

What do you notice about your player's **AB** and **H**?

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Activity 1

AVG or BA means "Batting Average"

You find the batting average by dividing the number of "Hits" by the number of "At Bats"

$$\text{Batting Average} = \frac{\text{Hits}}{\text{Atbats}}$$

What is your player's **AVG or BA?**

- What year did Peralta have the highest batting average?
- Is your player's batting average higher or lower than Peralta's?

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Activity 1

Batting Average = Hits / Atbats

A batter has 4 hits, out of 10 at bats.
What is their batting average?

$\frac{4}{10}$ = **0.4 or 0.400**

4 tenths   400 thousandths

A batter has 3 hits, out of 10 at bats.
What is their batting average?

$\frac{3}{10}$ = **0.3 or 0.300**
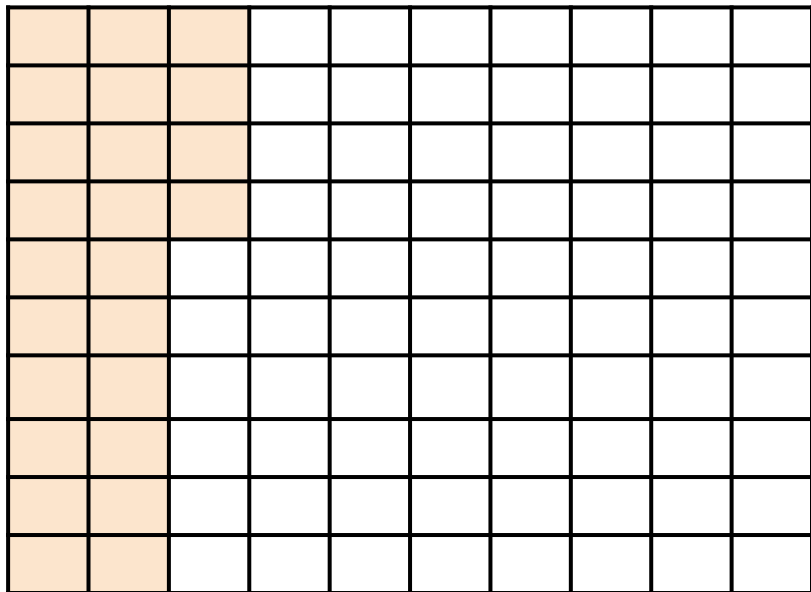
3 tenths   300 thousandths

Activity 1

Activity 1
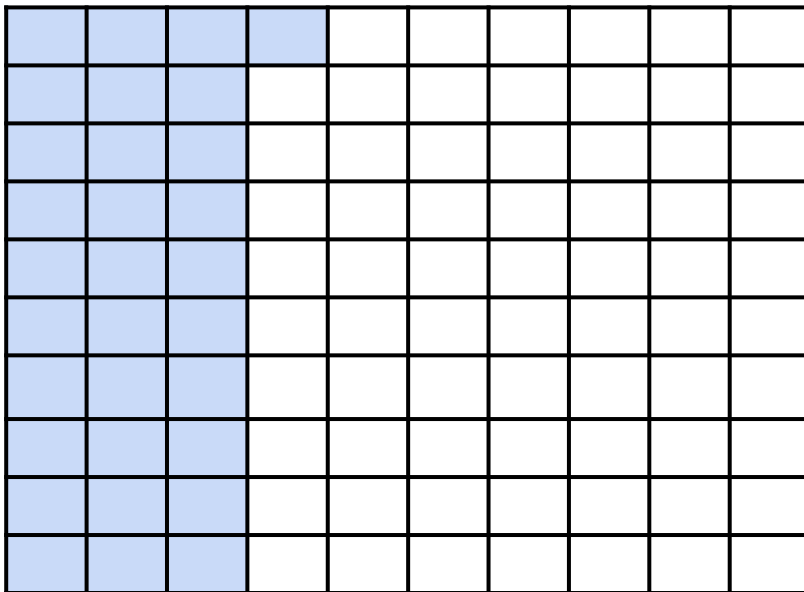
Comparing Baseball Statistics

Find a partner.

Compare the **AT BATS (AB)**, the **HITS (H),** and the **BATTING AVERAGE (AVG or BA)** on your cards.

Which player has more at bats?

Which player has more hits?

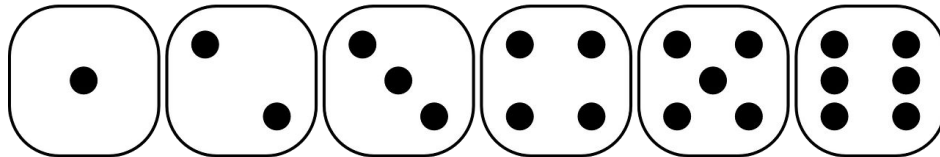Which player has a higher batting average?

Batting Average and Rolling a Dice

- Each time we roll the die, it counts as an **AT BAT**.
- Some numbers we roll will be **OUTS**.
- Some numbers we roll will be **HITS**.

- If we want to this to represent a typical MLB BATTING AVERAGE, how many numbers should count as HITS?
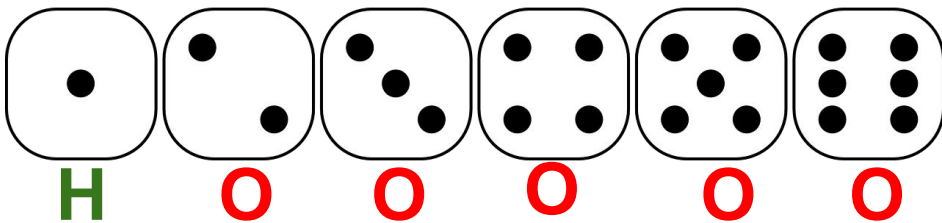
Batting Average and Rolling a Dice

- What if we said 5 of the numbers were HITS.
- Would that be a good way to show a typical MLB batting average?

H **H** **H** **H** **H** **O**
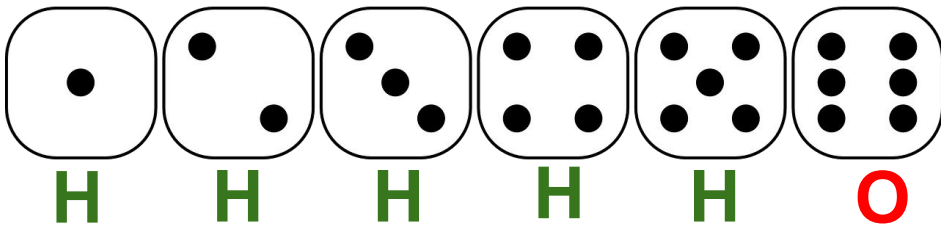
- What if we said only 1 number was a HIT, and everything else was an OUT.
- Would that be a good way to show a typical MLB batting average?
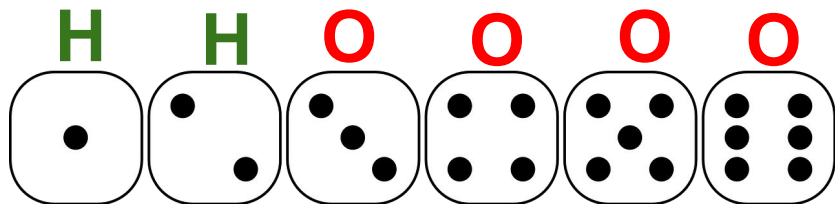
H **O** **O** **O** **O** **O**

Activity 1

PARTNERS:
One partner is the PITCHER
One partner is the SCORER

1. Select 2 numbers on the die that will count as a "HIT". All the other numbers count as "OUTs".

2. The PITCHER rolls the die 10 times. For each roll, the SCORER records if the roll is a "Hit" or an "Out"

3. After 10 rolls, represent the number of hits as a fraction, decimal and percent.

Roll #	Hit	Out
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
Total		

Record the number of "Hits" as a Fraction: _____

Record the number of "Hits" as a Decimal: _____

Record the number of "Hits" as a Percent: _____

H **H** **O** **O** **O** **O**

Activity 1

OPTIONAL VIDEO EXPLAINING ACTIVITY

https://www.youtube.com/watch?v=FBsmkroodco&ab_channel=ScienceofSport

Roll #	Hit	Out
1		X
2		X
3		X
4	X	
5		X
6		X
7	X	
8		X
9		X
10		X
Total	2	8

In this example, what is your batting average?

O	O	O	H	O	O	H	O	O	O
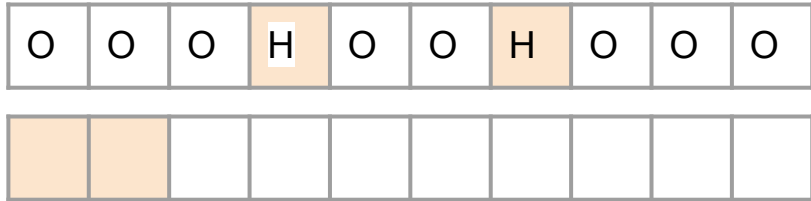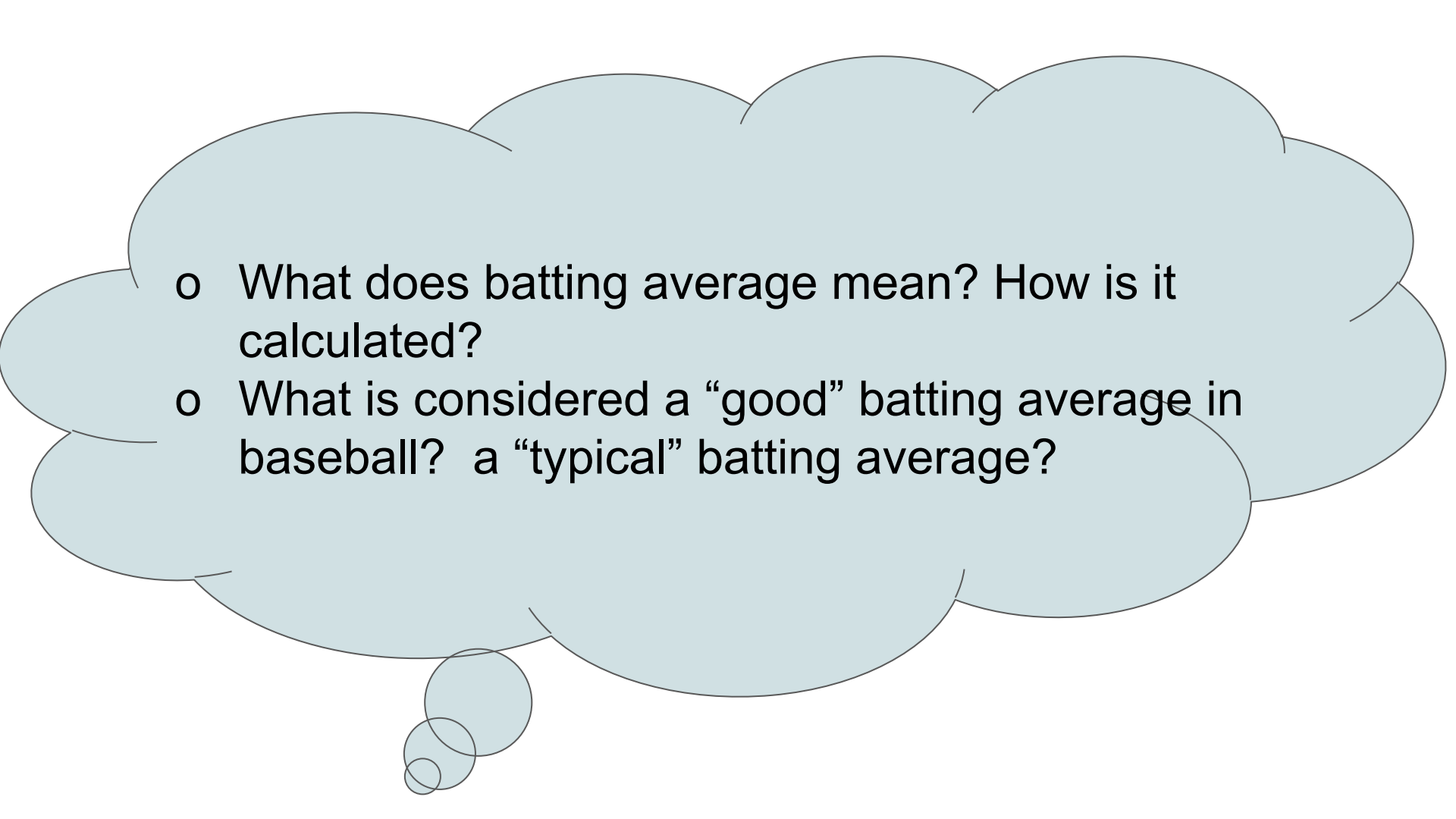
Record the number of "Hits" as a Fraction: $\frac{2}{10}$

Record the number of "Hits" as a Decimal: 0.2 or 0.20 or 0.200

Record the number of "Hits" as a Percent: 20%

Activity 1

All players fail to get hits, even successful batters.
Mistakes are expected.

What do you think baseball players learn from their mistakes at bat?

- Stand in a circle with 5-6 peers.
- Everyone think about a mistake they made in the past week, and what you learned from the mistake.
- Pick someone to start with the ball of yarn. That person shares a mistake they made out loud. Then they hold the end of the string, and pass the ball of yarn to another person in the group.
- This person shares a mistake, holds the string, and passes the ball of yarn to another group member.
- Continue until everyone has shared at least 2 mistakes.

Activity 2
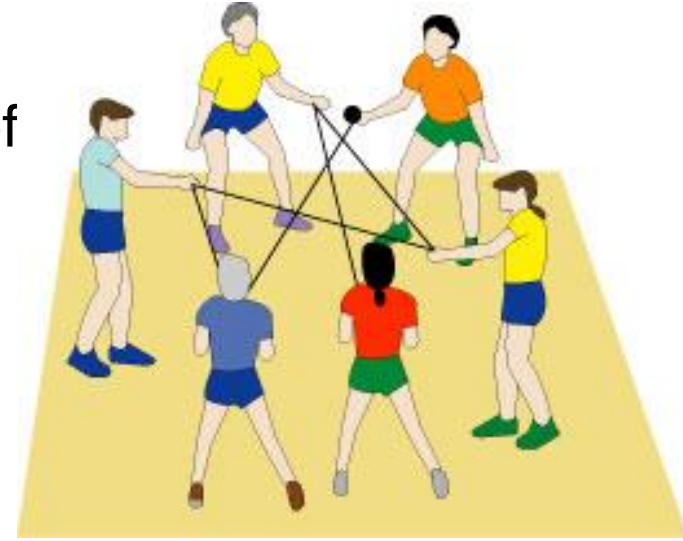
What do you notice about our web of mistakes?
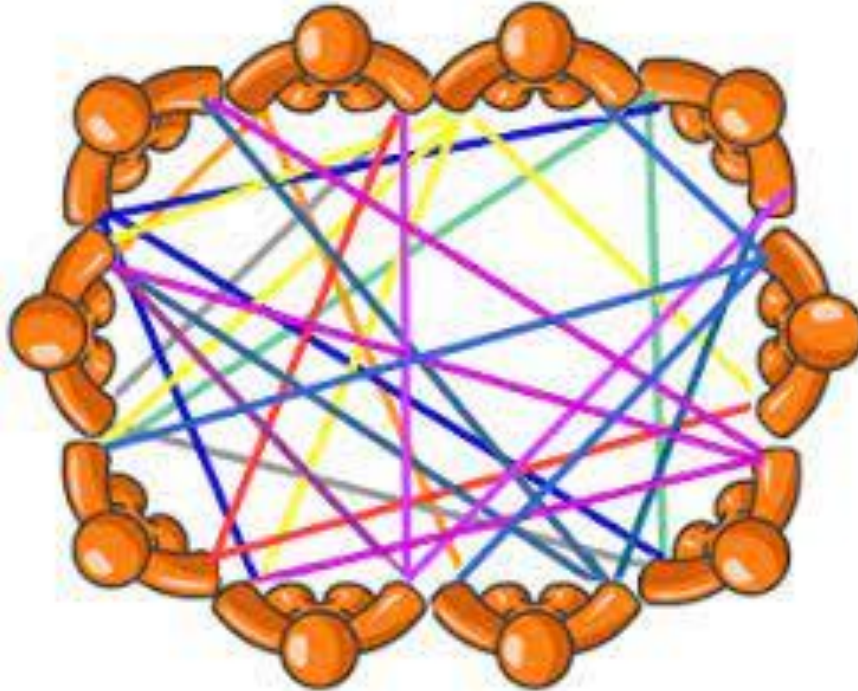
Activity 2

Watch How our Brains Grow When We Make Mistakes!

Mindset Matters

Activity 2

What is something you want to remember from this video?
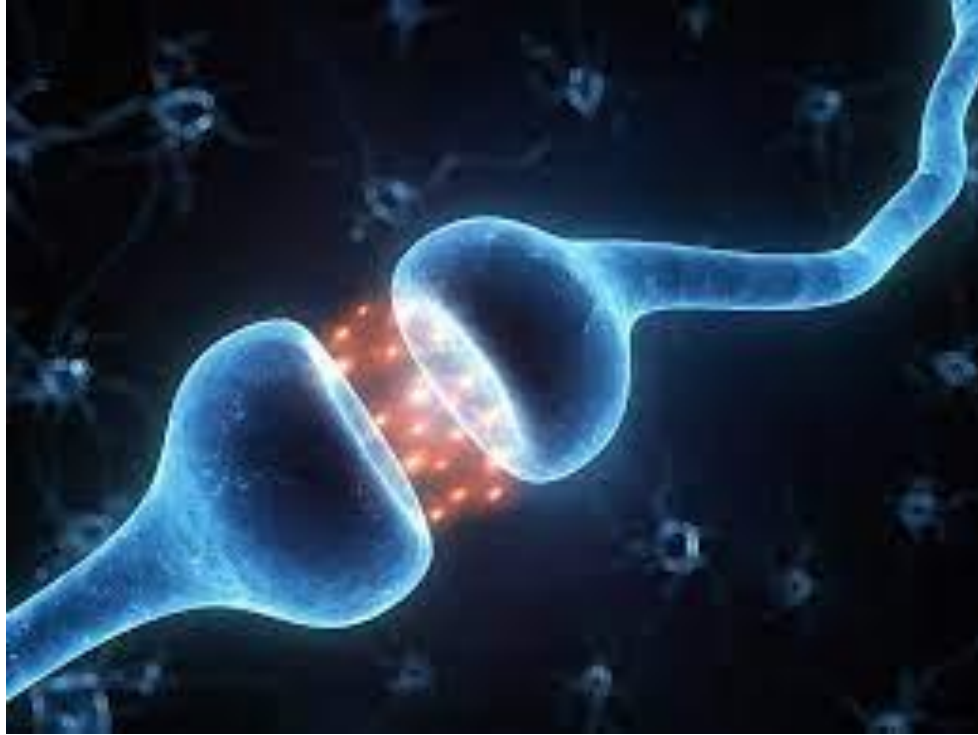
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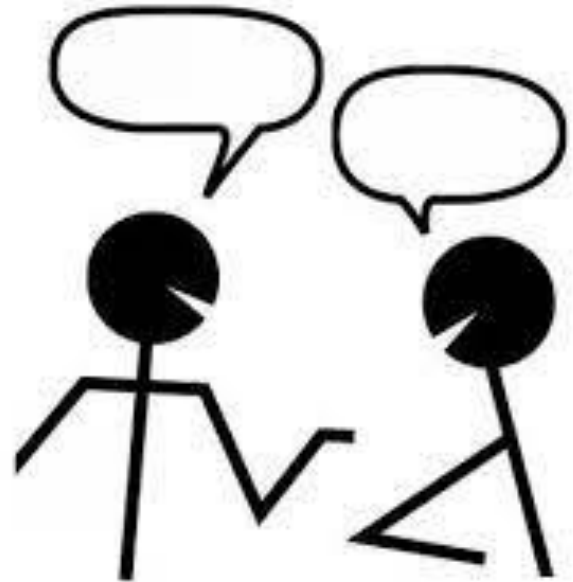
Baseball Players Learn from Mistakes

Tanner Swanson (00:00-1:29)
[How does failure make you a better baseball player?](#)

Activity 2

Think about the mistake you shared in your small group.

What strategies can you use to learn and grow from the mistake?

Extension for Grades 6-8

Let's Create a Dot Plot to Show our Data

TITLE: Number of Hits out of 10 Rolls

How should we label the horizontal axis?

What was the lowest number of hits?

What was the highest number of hits?

Let's Create a Dot Plot to Show our Data

- What is the spread of the data?
  Where is the center of the data?

- How does the data compare to our predictions about the number of rolls, out of 10, that would be "hits"?

- If each team of students completed 10 more rolls and noted the number of hits per 10 rolls, how might our dot plot change?

- How could we compute the AVERAGE number of hits, out of 10 rolls, across all the pairs in the group?