

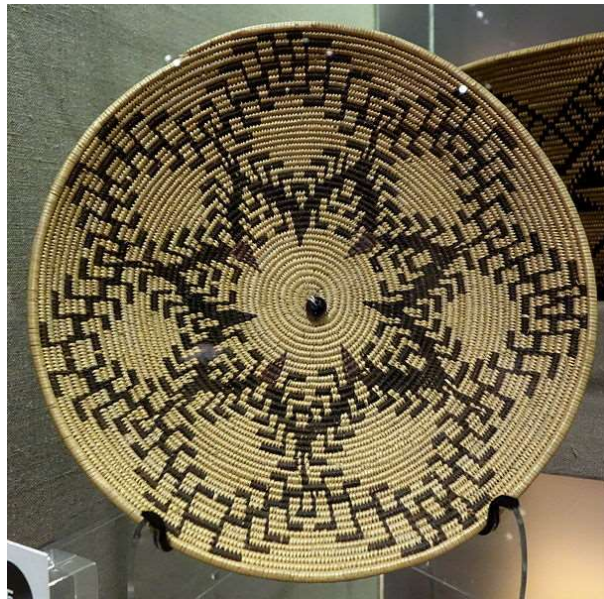
# Are Grades Failing Our Students?

2020 Academic Academy: Redefining ~~Distance~~ Education

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# Acknowledgement

**I acknowledge the traditional custodians of the land I am on today, the Maidu Tribes, and pay respect to their elders past and present.**



Maidu Basket Plate; CC0

# Discussion

- What is the purpose of grades?
- How are grades different from assessments?

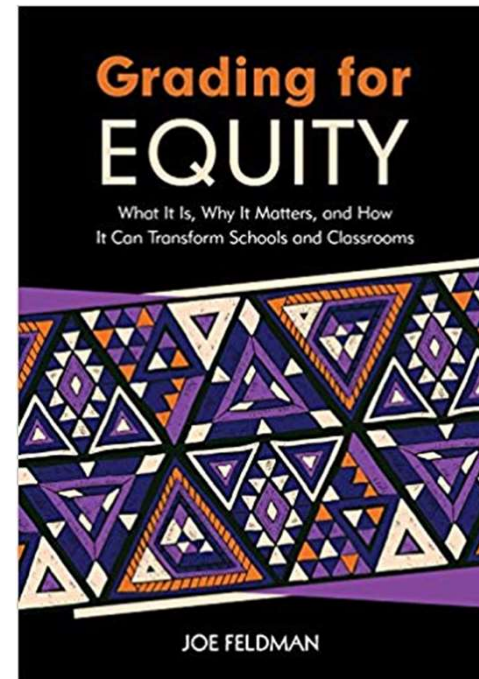
# Our Goal

## Better Data



[Brain](#) by Geralt; [pixabay license](#)

## Better Equity



[Grading for Equity](#) by Joe Feldman

# Our Path

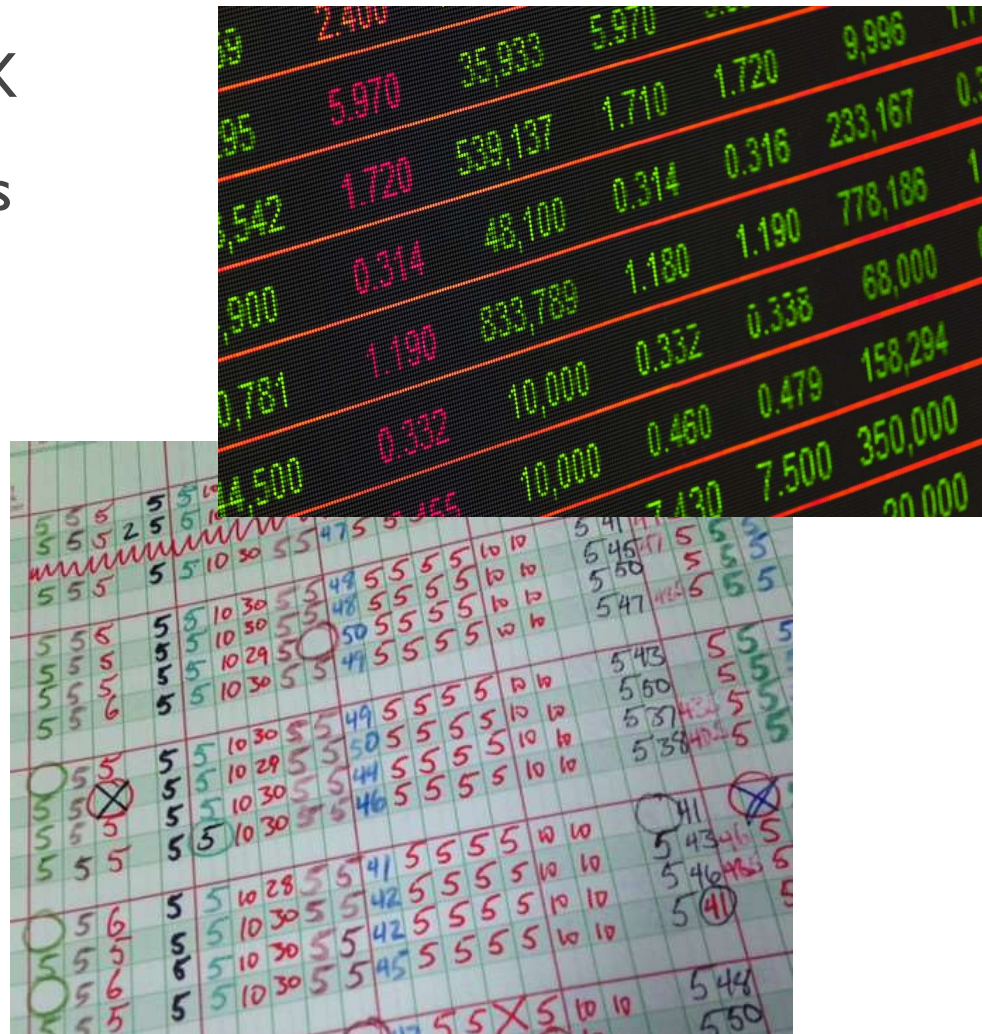
- The points marketplace
- Extra Credit
- Due dates
- Assigning Zeros
- Homework
- Authentic Assessment
- The 0 – 100 grading scale





# The Points Marketplace

- Bank of Professor X
- The Game of Points
- Using points to manage behavior
- Using points to measure learning



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Gradebook by David Mulder;  
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# The Slush Fund (Extra Credit)

- Weak learning in one area can be compensated for by more work in another.
- Reflects a students' environment more than their learning.
- If it's important, require it.
  - If not, don't include it in the grade.



Piggy Bank by blend12; pixabay license

# Due Dates

- What does this measure?
- Who is most likely to have late work? Why?
- Are extensions granted for some students?
  - Which students are most likely to ask?
  - Those that know the game
- Will they take advantage of us?





# Assigning Zeros for Missing Work

- That's a loooong way down
- Zero doesn't accurately measure knowledge
- Which students are most likely to miss assignments?
- How can students "make up" these points?



# Homework

- Formative Assessment
  - Allow revisions
  - Mistakes are part of learning
- Summative Assessment
  - Perfect on the first try
- Not an Assessment
  - Full points for “effort”



Athena by tschogibussi; CC BY-SA 3.0

# Authentic Assessment

Define & Group  
the following

- Peptide Bond
- Lactose
- Cholesterol
- Wax
- Polysaccharide
- Nucleotide
- Cellulose
- Nitrogenous base
- Enzyme
- Triglyceride
- Glucose
- Amino acid
- Disaccharide
- Fatty Acid
- Deoxyribose
- Chitin
- Phospholipid
- Ribose
- DNA
- protein

# Standard Test Questions

- What are we really measuring?

1. Which relationship is different?
  - A. Monosaccharide / Polysaccharide
  - B. Monosaccharide / Disaccharide
  - C. Phospholipid / Lipid
  - D. Amino Acid / Protein

# What do we want to measure?

**Carbohydrate:** (Sugars, disaccharide, monosaccharide's, polysaccharides) Store energy and maintain cell structure. They are non-polar and are insoluble in water. They are hydrophobic.

**Monosaccharide:** Simple sugar

**Polysaccharide:** When numerous monosaccharide's are joined together.

**Disaccharide:** double sugar, two monosaccharide's connected.

**Glycogen:** starch in plants

**Chitin:** Polysaccharide N- acetylglucosamine

**Starch:** Plant product formed together by bonding together thousand of glucose.

**Cellulose:** produced by plants, it's a polysaccharide of glucose.

**Glucose:** the most abundant monosaccharide in nature. It is the sugar molecule the body uses to create energy, and it is the fuel used by brain cells.



# What do we want to measure?

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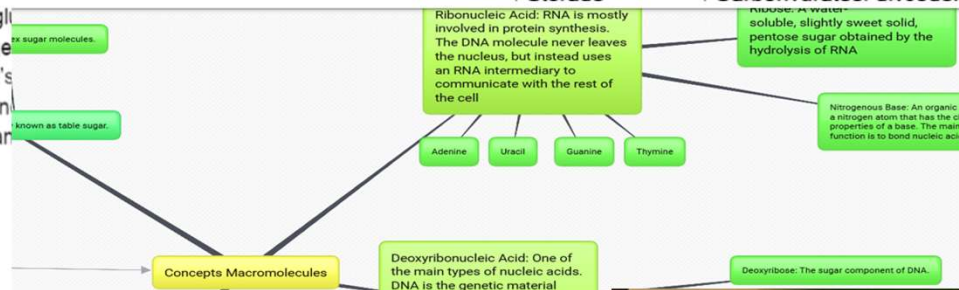
**Chitin:** Polysaccharide N- acetylgl

**Starch:** Plant product formed toge

**Cellulose:** produced by plants, it's

**Glucose:** the most abundant mon the body uses to create energy, an

Sugars	Deoxyribose, fructose, glucose, lactose, ribose, sucrose
Sugar Identification	Monosaccharides, disaccharides, polysaccharides
Nucleobases	Adenine, cytosine, guanine, thymine
Nucleic Acid	Deoxyribonucleic acid, nucleotide, nitrogenous base, ribonucleic acid
Cell essentials	Cellulose, protein, cholesterol, chitin
Fats	fatty acids, glycerol, lipids, phospholipid, steroid, triglyceride, waxes
Storage	Carbohydrates, alvcooen, starch



Functions of Cell Structures

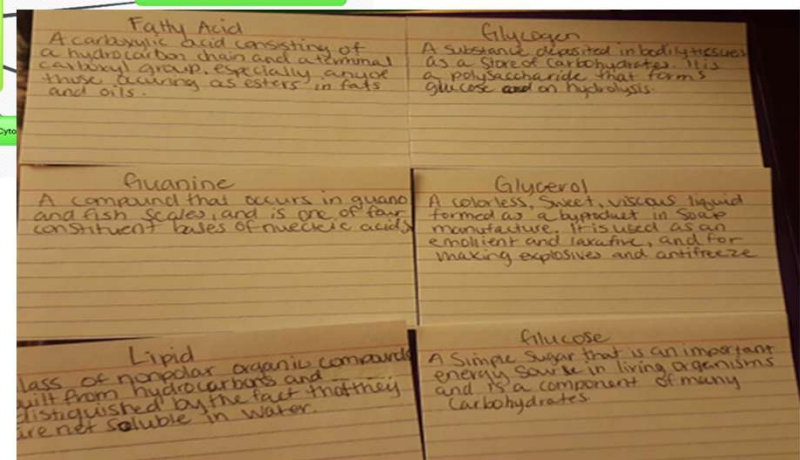
Remaining: 8, Correct: 1, Wrong: 3

8%

07:45.0

Quit

Chloroplast	Photosynthesis
Cytoskeleton	Protein synthesis
Cytosol	cellular respiration and ATP production
DNA	control calcium release and muscle contractions, and breakdown toxins in liver
Golgi apparatus	digestive function in plant cells
Mitochondrion	directs synthesis of ribosomes and proteins, houses DNA
Nucleus	distributes lipids and proteins after modifying, sorting, tagging, and packaging them
Plasma membrane	genetic codes or markers, making everyone unique
Ribosomes	organelles stay in specific positions, lets cytoplasm and vesicles move around in the cell, and unicellular organisms to move independently keeps the shape of the cell
Rough endoplasmic reticulum	
Smooth endoplasmic reticulum	
Vesicle	

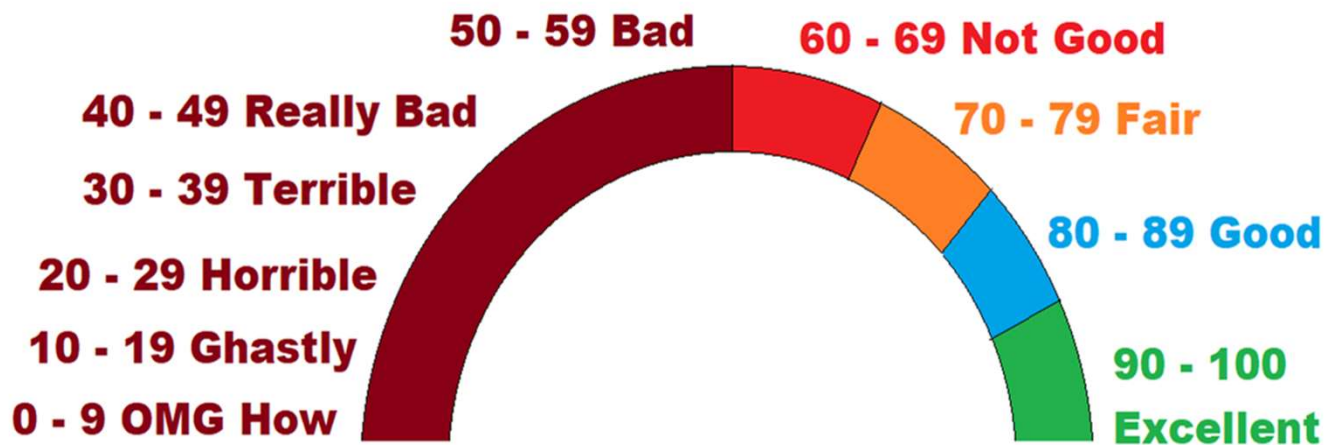
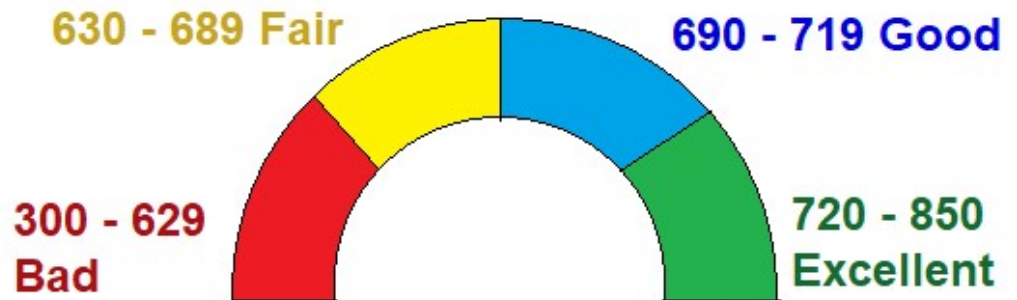


# 100 pt scale

- Grading is not that precise

- too many sig figs

- So many ways to fail



# GPA Scale

4 pts (A) Exemplary	3 pts (B) Accomplished	2 pts (C) Proficient	1 pt (D) Developing	0 pts (F) Beginning
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		<b>traditional grading</b>	<b>minimum grading</b>	<b>4 pt scale</b>
Assignment 1	85%	85	85	3 (B)
Assignment 2	85%	85	85	3 (B)
Assignment 3	7%	7	50	0 (F)
Final Grade		59% (F)	73% (C)	2 (C)

# Outcomes Based Grading

- Exams are organized by topic rather than question type
- Students get grades based on learning outcomes

	Cardiovascular System (Test 1 Part A)	Digestive System (Test 1 Part B)	Nervous System (Test 1 Part C)	Total
Student A	3	3	3	3 (B)
Student B	4	4	2	3 (B)
Student C	2	4	4	3 (B)

# Grading schema

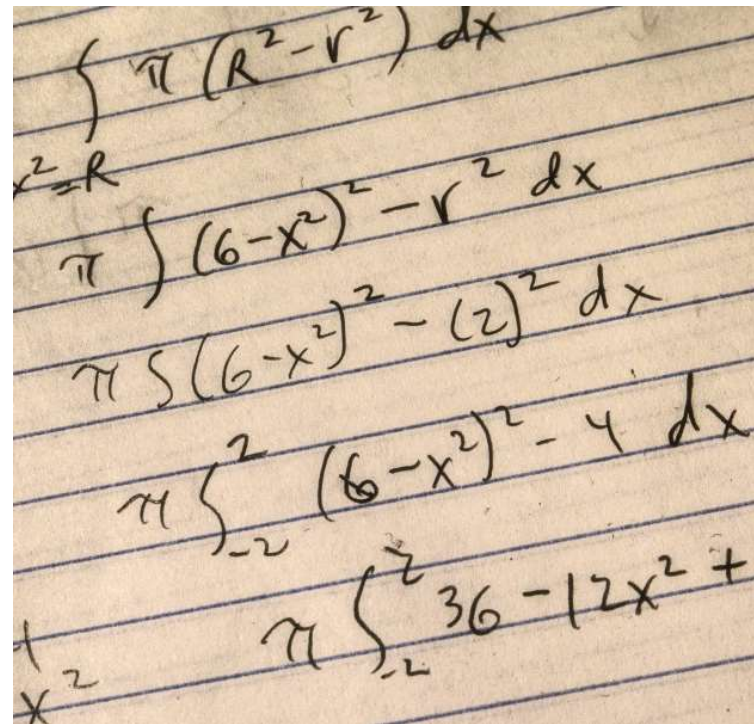
- Weighing more recent grades higher
- Mean v. Median

Grades	Mean	Median
<b>40%</b> 84% 86% 88% <b>94%</b>	Average =  78%	Middle number of ordered set =  86%



# Complex Grading Schemes

- Lifting the veil
- Excel made me do it
- Students don't know how to improve
- Rubrics can help



Handwritten mathematical work on lined paper, showing a sequence of integrals:

$$\int \pi (R^2 - r^2) dx$$
$$x^2 = R$$
$$\pi \int (6 - x^2)^2 - r^2 dx$$
$$\pi \int (6 - x^2)^2 - (2)^2 dx$$
$$\pi \int_{-2}^2 (6 - x^2)^2 - 4 dx$$
$$\pi \int_{-2}^2 36 - 12x^2 +$$