

GENERAL INQUIRY

[TX Standards](#)

[Summary](#)

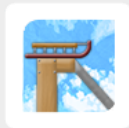


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Basic Tutorial

- Determine how the **sugar** in the water affects the **petal loss**.
- Determine how the **salt** in the water affects the **petal loss**.
- Determine how the **red dye** in the water affects the redness of the **petals**

[Summary](#)



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Advanced Tutorial

- Determine how the **size** of the sled affects the total **distance** traveled from the end of the ramp.
- Determine how the **height** of the tower affects the total **distance** traveled from the end of the ramp.
- Determine how the **roughness** of the ramp affects the **time** to end of the ramp.

PHYSICAL SCIENCE

[TX Standards](#)

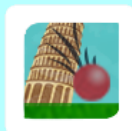
[Summary](#)



Phase Change

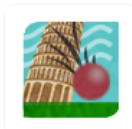
112.18.5.A

- Determine how the amount of **heat** affects the **boiling point** of water.
- Determine how the **size** of the container affects the **time** the water takes to boil.
- Determine how the **amount of ice** affects the **boiling point** of water.
- Determine how the **amount of ice** affects the **melting point** of ice.

Summary

Velocity: Free Fall

- Determine how the **height** of the drop affects the **final speed** of the ball.
- Determine how the **height** of the drop affects the **time** to drop.
- Determine how the **mass** of the ball affects the **time** to drop.

Summary

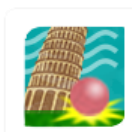
Velocity & Air Resistance

- Determine how the **height** of the drop affects the **velocity** of the ball before it hits the ground.
- Determine how the **mass** of the ball affects the **acceleration** before the ball hits the ground.
- Determine how the **volume** of the ball affects the **force** as the ball hits the ground.
- Determine how the **volume** of the ball affects the **time** before the ball hits the ground.

Summary

Energy: Free Fall

- Determine how the **height** of the drop affects the **kinetic energy** as the ball hits the ground.
- Middle School: Determine how the **height** of the drop affects the **potential energy** before the ball is dropped.
- High School: Determine how the **mass** of the ball affects the **mechanical energy** as the ball hits the ground.

Summary

Energy & Air Resistance

- Determine how the **height** of the drop affects the **potential energy** before the ball is dropped.
- Determine how the **mass** of the ball affects the **mechanical energy** as the ball hits the ground.
- Determine how the **volume** of the ball affects the **thermal energy** of the system.
- Determine how the **volume** of the ball affects the **kinetic energy** as the ball hits the ground.

[Summary](#)



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Density

112.18.6.B

- Determine how the **type of liquid** affects the **density** of the liquid.
- Determine how the **shape** of the container affects the **density** of the liquid.
- Determine how the **amount** of liquid affects the **density** of the liquid.

[Summary](#)



Gravity & Mass: Introduction

112.20.6.B

112.39.5.B

- Determine how the **planetary body** we are orbiting affects the **weight** of the gold.
- Determine how the **planetary body** we are orbiting affects the **mass** of the gold.
- Determine how the **amount** of gold affects the **weight** of the gold.

[Summary](#)



Gravity & Orbit Distance

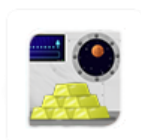
112.20.6.C

112.38.4.F

112.39.5.B

- Determine how the **amount** of gold affects the **force of gravity** on gold.
- Middle School: Determine how the gold's **distance** from the planet's center affects the force of **gravity** on gold.
- High School: Determine how the planet's **mass** affects the force of **gravity** on gold.

[Summary](#)



Gravity & Forces

112.38.4.F

112.39.5.B

- Determine how the **orbital distance** affects the gold's **mass**.
- Determine how the **planet's mass** affects the force of **gravity**.
- Determine how the **orbital distance** affects the force of **gravity**.

[Summary](#)








Collisions: Introduction

112.20.6.A

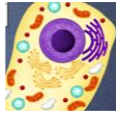
112.38.4.E

- Determine how the **mass** of the green ball affects the **final velocity** of the green ball.
- Determine how the **initial velocity** of the red ball affects the total final **momentum** to the right.
- Determine how the **mass** of the red ball affects the total final **momentum** to the right.

<p>Summary</p>		<p>Collisions: Advanced</p> <ul style="list-style-type: none"> • Determine how the mass of the green ball affects the final velocity of the green ball. • Determine how the initial velocity of the red ball affects the total final momentum to the right. • Determine how the mass of the red ball affects the total final momentum to the right. 	<p>112.38.4.E</p>
<p>Summary</p>		<p>Collisions: Inelastic (Trains)</p> <ul style="list-style-type: none"> • Determine how the initial velocity of the red train affects the total final momentum to the right. • Determine how the initial velocity of the green train affects the total final momentum to the right. • Determine how the mass of the red train affects the final velocity of the red train. 	<p>112.20.6.A 112.38.4.E</p>
<p>Summary</p>		<p>Forces & Motion: Introduction</p> <ul style="list-style-type: none"> • Determine how the mass of the sled impacts the force of the sled on the spring. • Determine how the roughness of the ramp impacts the time to end of the ramp. • Determine how the height of the tower impacts the velocity of the sled. 	<p>112.18.8.A 112.20.6.B</p>
<p>Summary</p>		<p>Forces & Motion: Different Planetary Bodies</p> <ul style="list-style-type: none"> • Determine how the gravity of the planetary body impacts the force of the sled on the spring. • Middle School: Determine how the gravity of the planetary body impacts the time to end of the ramp. • High School: Determine how the gravity of the planetary body impacts the velocity of the sled. 	<p>112.20.6.C 112.39.5.B</p>
<p>Summary</p>		<p>Waves on a String: Introduction</p> <ul style="list-style-type: none"> • Determine how the tension of the string impacts the wave frequency. • Determine how the length of the string impacts the wave speed. • Determine how the strength of the strum impacts the loudness of the sound. 	<p>112.20.8.C 112.39.7.B</p>

<p>Summary</p>		<p>Waves on a String: Advanced</p> <ul style="list-style-type: none"> • Determine how the wave frequency changes. • Determine how the loudness changes. • Determine how the wave speed changes. 	<p>112.39.7.B</p>
<p>Summary</p>		<p>Waves in a Drum: Introduction</p> <ul style="list-style-type: none"> • Determine how the substance in the drum (medium) influences the wave speed. • Determine how the mallet position influences the loudness of the sound produced. • Determine how the mallet speed influences the pitch of the sound produced. 	<p>112.20.8.C 112.39.7.B</p>
<p>Summary</p>		<p>Waves in a Drum: Advanced</p> <ul style="list-style-type: none"> • Investigate what affects the loudness of the sound produced. • Investigate what affects the pitch of the sound produced. • Investigate what affects the wave speed. 	<p>112.39.7.B</p>
<p>Summary</p>		<p>Waves & Thermal Energy</p> <ul style="list-style-type: none"> • Determine how the temperature in the drum influences the wave speed. • Determine how the temperature in the drum influences the loudness of the sound produced. • Determine how the temperature in the drum influences the pitch of the sound produced. 	<p>112.20.8.C 112.39.7.B</p>
<p>Summary</p>		<p>Chemical Reactions</p> <ul style="list-style-type: none"> • Determine how the substance added to vinegar impacts the temperature change. • Determine how the amount of baking soda impacts the temperature change. • Determine how the amount of vinegar impacts the temperature change. 	<p>112.20.5.a</p>

112.19.12.D

Summary

Cells: Animal - Function

- The **Golgi body** is not receiving enough **protein**. Investigate how you can fix this problem.
- The cell is producing too many **ribosomes**. Investigate how you can decrease the production of ribosomes.
- The cell has too much **protein**. Investigate how you can reduce the amount of protein.

112.19.12.D

Summary

Cells: Animal - Energy & Storage

- The cell **cannot break down food**. Investigate how you can fix this problem.
- The cell is storing **too many nutrients**. Investigate how you can fix this problem.
- The cell is **low on energy**. Investigate how you can increase its energy.

112.19.12.D

Summary

Cells: Plant - Function

- The **Golgi body** is not receiving enough **protein**. Investigate how you can fix this problem.
- The cell is producing too many **ribosomes**. Investigate how you can decrease the production of ribosomes.
- The cell has too much **protein**. Investigate how you can reduce the amount of protein.

112.19.12.D

Summary

Cells: Plant - Energy & Storage

- The cell does not have enough **storage** space.
- The cell is not producing enough **food**. Investigate how you can fix this problem.
- The cell is **low on energy**. Investigate how you can increase its energy.

112.19.14.A

112.34.7.D

Summary

Natural Selection

- Investigate the optimal amount of **foliage** for the **green**, long furred slinquettes' population.
- Investigate the optimal amount of **foliage** for the **red**, short, furred slinquettes' population.
- Investigate the optimal **temperature** for the green **short furred** slinquettes' population.
- Investigate the optimal **temperature** for the red, **long furred** slinquettes' population.

[Summary](#)

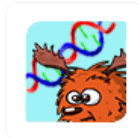


Diversity of Traits

112.19.14.A
112.34.7.E

- Investigate how **foliage** influences the presence of **red, short furred** living in the environments.
- Investigate how **fur color mutation** influences the final number of **green, short furred** living in the environments.
- Investigate how a **fur length mutation** influences the presence of red, **long furred** living in the environments.
- Investigate how **temperature** influences the final number of green, **long furred** living in the environments.

[Summary](#)



Genetics

112.19.14.A

- Determine how the Mother's F **alleles** impact the chance of producing the **offspring with red fur**.
- Determine how the Mother's L **alleles** impact the chance of producing the **offspring with short fur**.
- Determine how the Mother's H **alleles** impact the chance of producing the **offspring with horns**.

[Summary](#)



Predation: Introduction

112.20.11.A
112.32.11.B

- Investigate how **seal birthrate** influences the **maximum shark population**.
- Investigate how **shark birthrate** influences the **maximum seal population**.
- Investigate how a **starting seal population** influences the **length of the predation cycle**.
- Investigate how a **starting shark population** influences the **length of the predation cycle**.

[Summary](#)



Predation: Advanced

112.32.11.B

- Investigate how an **initial seal population** influences the **duration of predation cycles**.
- Investigate how **seal birthrate** influences the **final seal population**.
- Investigate how **shark birthrate** influences the **duration of predation cycles**.

[Summary](#)

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Lunar Phases

- Determine how the **position of the moon** impacts the **percent of the Moon facing the Sun**.
- Determine how the **location of the observer** impacts the **percent of the Moon lit up**.
- Determine how the **orbital speed of the moon** impacts the **duration of lunar orbit**.

112.18.11.A
112.20.7.B
112.33.7.A

[Summary](#)**Lunar Phases: Advanced**

- Determine how the **percent of the Moon lit up** changes.
- Determine how the **duration of lunar orbit** changes.
- Determine how the **percent of the Moon facing the Sun** changes.

112.33.7.A

[Summary](#)**Eclipses: Introduction**

- Determine how the **phase of the Moon** affects the **possibility** of viewing a **lunar eclipse**
- Determine how the **phase of the Moon** affects the **possibility** of viewing a **solar eclipse**
- Determine if the **orbital tilt of the moon** impacts the average number of **lunar eclipses**.
- Determine how the **time of year** impacts the average number of **solar eclipses**.

112.18.11.A
112.20.7.B
112.33.7.C

[Summary](#)**Eclipses: Advanced**

- Determine how the average number of **lunar eclipses** changes.
- Determine how the average number of **solar eclipses** changes.
- Determine how the possibility of viewing a **lunar eclipse** changes.
- Determine how the possibility of viewing a **solar eclipse** changes.

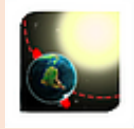
112.33.7.C

<p>Summary</p> 	<p>Plate Tectonics: Convergent Plates- Introduction</p> <ul style="list-style-type: none"> • Determine how the plate type affects the formation type. • Investigate how the duration of plate movement impacts the formation heights at the convergent boundary. • Investigate how plate size impacts the number of earthquakes at the convergent boundary. 	<p><i>112.18.10.D</i> <i>113.36.10.C</i></p>
<p>Summary</p> 	<p>Plate Tectonics: Convergent Plates- Advanced</p> <ul style="list-style-type: none"> • Investigate what affects the formation type at the convergent boundary. • Determine the impact of the duration of plate movement. • Investigate what affects the number of earthquakes. 	<p><i>113.36.10.C</i></p>
<p>Summary</p> 	<p>Plate Tectonics: Divergent Plates</p> <ul style="list-style-type: none"> • Investigate what affects the formation observed at the divergent boundary. • Middle School: Investigate what affects the age of crust. • High School: Investigate what affects the spreading rate at the divergent boundary. 	<p><i>112.18.10.D</i> <i>113.36.10.C</i></p>
<p>Summary</p> 	<p>Plate Tectonics: Divergent Plates- Advanced</p> <ul style="list-style-type: none"> • Investigate what affects the formation observed at the divergent boundary. • Investigate what affects the spreading rate at the divergent boundary. • Investigate what affects the age of crust at the divergent boundary. 	<p><i>113.36.10.C</i></p>
<p>Summary</p> 	<p>Seasons: Introduction</p> <ul style="list-style-type: none"> • Determine how the tilt of the Earth affects the average temperature. • Determine how the location of Earth in orbit affects the distance of Earth from the Sun. • Determine how the location of the observer on Earth affects the angle of sunlight. 	<p><i>112.20.7.A</i> <i>112.33.8.A</i></p>

112.33.8.A

Seasons: Advanced

[Summary](#)



- Determine how the **angle of sunlight** changes.
- Determine how the average **temperature** changes.
- Determine how the **distance** of Earth from the Sun changes.

112.20.7.A

112.33.8.A

Seasons: Earth has NO Tilt! Introduction

[Summary](#)



- If the Earth has no tilt, determine how the **location of Earth in orbit** affects the **average temperature**.
- If the Earth has no tilt, determine how the **location of Earth in orbit** affects the **distance** of Earth from the Sun.
- If the Earth has no tilt, determine how the **location of the observer** affects the **angle of sunlight**.

112.33.8.A

Seasons: Earth has NO Tilt! Advanced

[Summary](#)



- If the Earth has no tilt, determine how the **angle of sunlight** can change.
- If the Earth has no tilt, determine how **the average temperature** can change.
- If the Earth has no tilt, determine how the **distance** of Earth from the Sun can change.