



Textbook Summarization

Dennis, Sagar, Saloni

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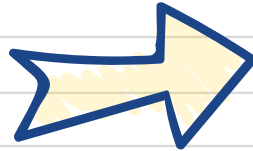
Keywords

06

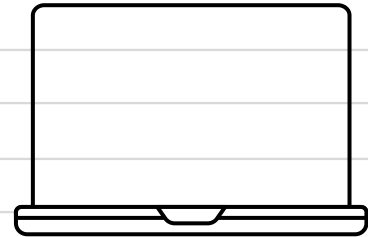
Future Work

Introduction

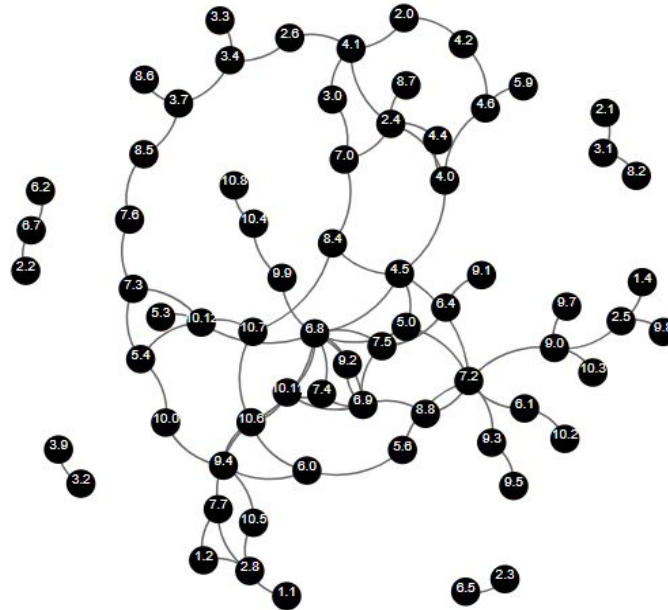
Textbooks are difficult to digest,
but contain all the necessary
content.



Improve student-centric textbook
navigation by creating/visualizing a
knowledge structure of a textbook
on one page.

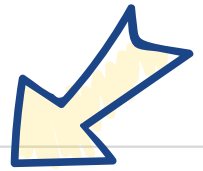


Past Work



Chapter 7.4: Frequency response of an ideal LPF with its cutoff at ω_c rad/s. Figure~* shows a plot of for the ideal LPF. Figure~* shows the frequency response of an 11-point moving average filter. EXAMPLE: Ideal Lowpass Filtering Consider an ideal lowpass filter with frequency response given by and impulse response in. Figure~* shows an ideal HPF with its cutoff frequency at ω_c rad/s. Frequency response of an ideal HPF with cutoff at ω_c rad/s. That is, the ideal bandpass filter has frequency response Figure~* shows an ideal BPF with its cutoff frequencies at ω_1 and ω_2 . Frequency response of an ideal BPF with its passband from ω_1 to ω_2 rad/s.

Goals & Motivation



The application at the beginning of the semester was primitive, with many areas of possible improvement such as the user interface and offered features (which require a UI!). Our consequent goals included:

- Developing a user interface for the features developed by the other subteams.
- Refining the appearance of the “crowded” nodes and their connections
- In general, enhancing the UI to be more attractive to a user



New Features



01 Tracking Usage

Saloni



02

Improving graph & summary appearance

Sagar



03 Keyword Visualization

Sagar and Dennis

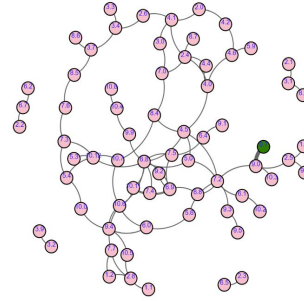


Tracking Usage



Node Coloring:

Modify the color of a node when pressed.

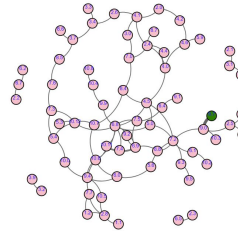


Review Later



Node Pressed x3:

Notify the user when they have clicked on a node thrice, and recommend them to look at related subchapters



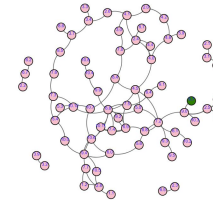
Review Later

Summary:
Chapter 9.7: This explains why we have only nine zeros around the unit circle with the gap at A . A Complex Bandpass Filter. Now we have a new insight that tells us how to control the frequency response of an FIR filter by placing its zeros on the unit circle. One idea is to view the zero distribution in Fig. 9.7 as a rotation of the zeros of the running-sum filter in Fig. 9.6. As in the case with any real-valued filter, the magnitude of the frequency response exhibits a symmetry about $\omega = \pi$.
You've clicked on this sub-chapter 3 times. Consider reviewing adjacent subchapters!



Review List:

Allow users to add subchapters to a list of subchapters they want to review later.

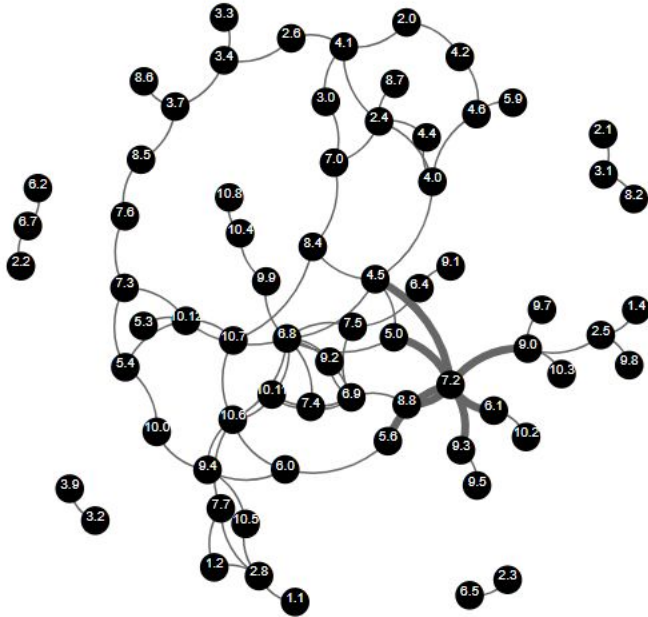


Review Later

Nodes to Review Later:

Summary:
Chapter 9.7: This explains why we have only nine zeros around the unit circle with the gap at A . A Complex Bandpass Filter. Now we have a new insight that tells us how to control the frequency response of an FIR filter by placing its zeros on the unit circle. One idea is to view the zero distribution in Fig. 9.7 as a rotation of the zeros of the running-sum filter in Fig. 9.6. As in the case with any real-valued filter, the magnitude of the frequency response exhibits a symmetry about $\omega = \pi$.
Node added for later review!

Improving Appearance - Side Panel



Summary:

Chapter 7.2: EXAMPLE: DTFT of an FIR Filter The following FIR filter has a finite-length impulse response signal: Each impulse in is transformed using, and then combined according to the linearity property of the DTFT which gives Uniqueness of the DTFT The DTFT is a unique relationship between and ; in other words, two different signals cannot have the same DTFT. EXAMPLE: DTFT of Complex Exponential? The result of the inverse DTFT is the discrete-time signal where. Riemann sum approximation to the integral of the inverse DTFT. Here, which is the DTFT of.

Keywords:

sinusoids

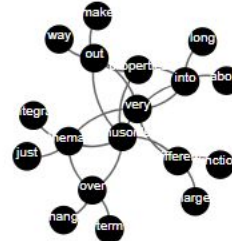
demo

polynomial

filtering

multiplications

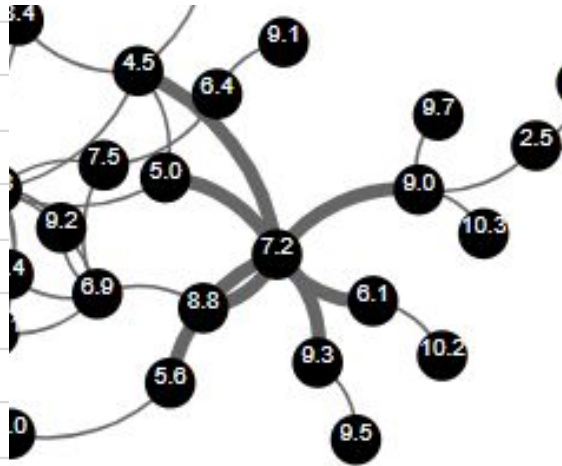
Network for "Sinusoids":



Improving Appearance - Interactivity

Hover

Highlight adjacent nodes ("chapters")



Click

"Lock" information in side panel

Keyword Visualization

Keyword Chips

Displays top five relevant keywords associated with subchapter

Keywords:

sinusoids

demo

polynomial

filtering

multiplications

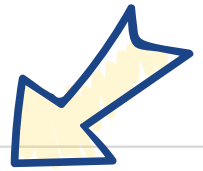
Inter-Keyword Graph

Selecting a keyword displays a network of similar keywords

Network for "Sinusoids":



Future Work



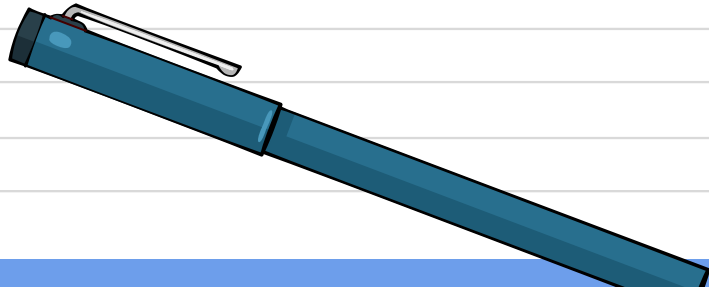
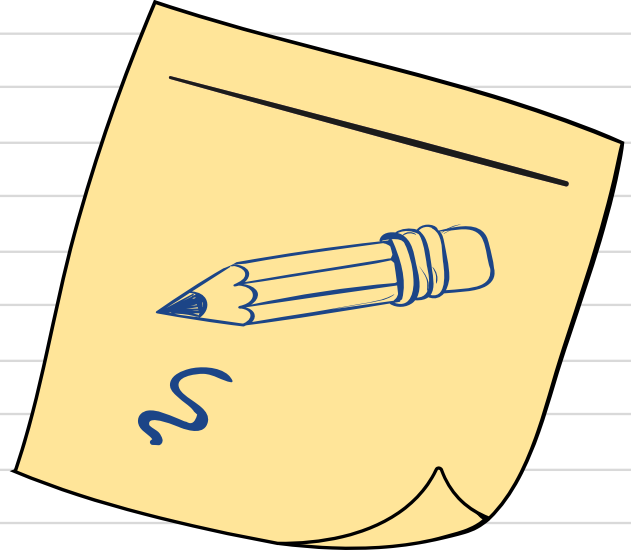
- Integrate interactive chatbot so the user can ask questions directly to ChatGPT
- Generate flashcards/quiz questions using subchapter content
- Expand functionality to generate graphs and keywords for any textbook or academic article
- Explore different keyword extraction algorithms

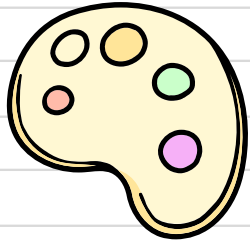




WHOA!

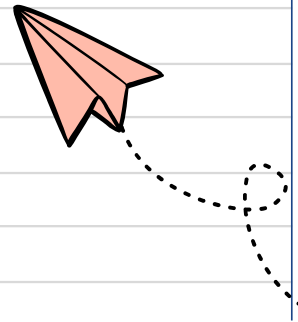
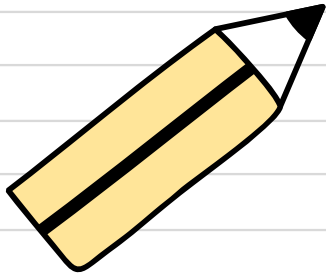
This can be the part of the presentation where you can introduce yourself, write your email...

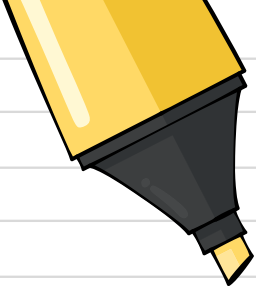




WHOA!

This can be the part of the presentation where you can introduce yourself, write your email...

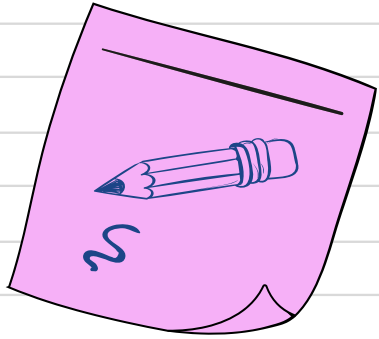




“This is a quote, words full of wisdom that someone important said and can make the reader get inspired.”

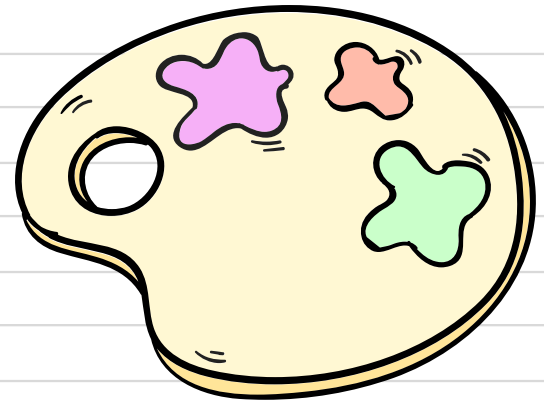
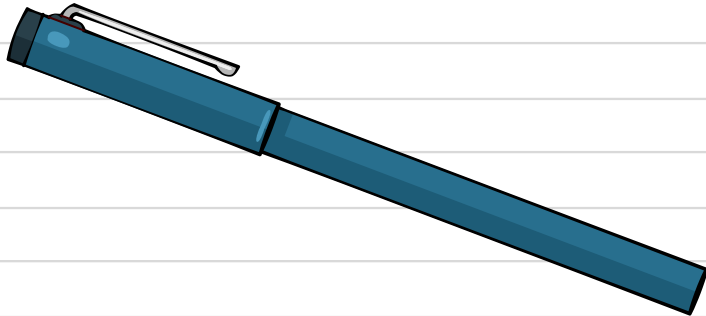
—SOMEONE FAMOUS





“This is a quote, words full of wisdom that someone important said and can make the reader get inspired.”

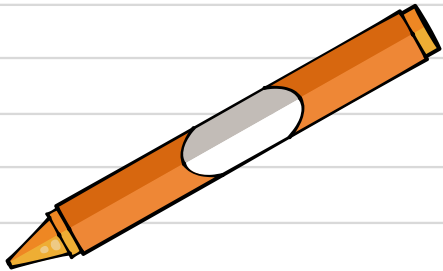

—SOMEONE FAMOUS



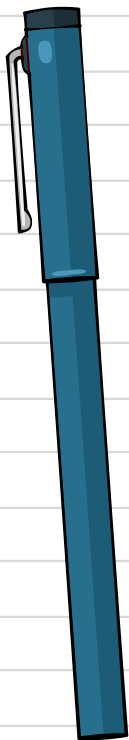


01

**NAME OF THE
SECTION**



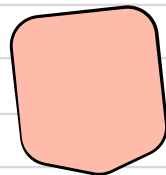
You can enter a subtitle
here if you need it



Introduction

You can enter a subtitle here if you need it

01





**The slide title goes
right here!**

Do you know what helps you make your point clear? Lists like this one:

- They're simple
- You can organize your ideas clearly
- You'll never forget to buy milk!

And the most important thing: the audience won't miss the point of your presentation ever again





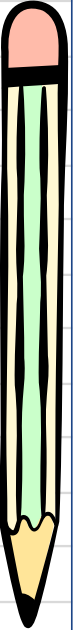
The slide title goes right here!

Mercury

Mercury is the closest planet to the Sun and the smallest one

Venus

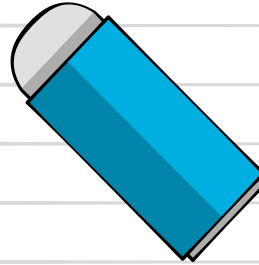
Venus has a beautiful name and is the second planet from the Sun



Maybe you need to divide the content

Mercury

Mercury is the closest planet to the Sun and the smallest one in the Solar System—it's only a bit larger than the Moon



$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Venus

Venus has a beautiful name, is the second planet from the Sun and its atmosphere is extremely poisonous

Maybe you need to divide the content



Mercury

Mercury is the closest planet to the Sun

Saturn

Saturn is the only planet with rings

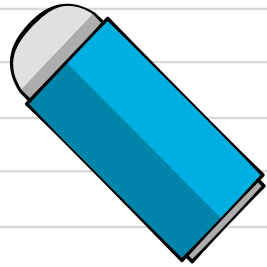


Venus

Venus has a beautiful name, but it's hot

Mars

Despite being red, Mars is a cold place



You can use three columns, why not?

Mars

Mars is a cold place. It's full of iron oxide dust, which gives the planet its reddish cast

Jupiter

It's the biggest planet in the Solar System and the fourth-brightest object in the sky

Saturn

Saturn is a gas giant and the only planet with rings. It's composed of hydrogen and helium



You can use five columns, why not?

Mercury

Mercury is the closest planet to the Sun

Saturn

Saturn is the only planet with rings

Neptune

Neptune is very far from the Sun

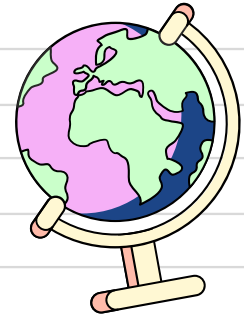


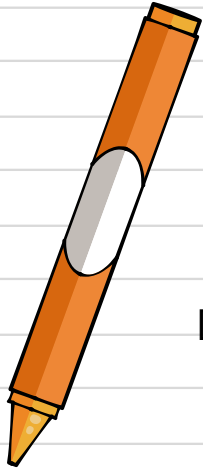
Mars

Despite being red, Mars is a cold place

Venus

Venus has a beautiful name, but it's hot





You can use three columns, why not?

Mars

Despite being red, Mars is a cold place

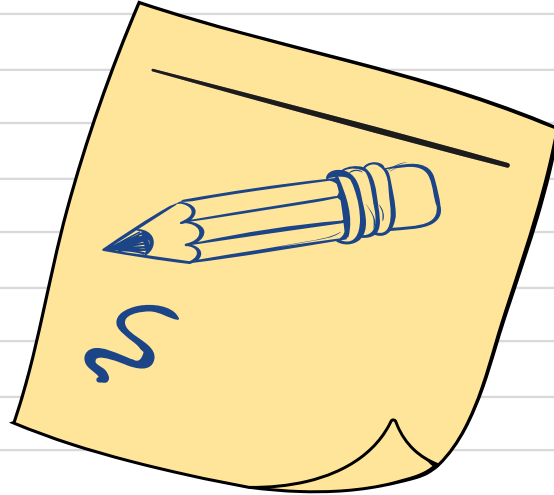
Saturn

Saturn is the only planet with rings

Mercury

Mercury is the closest planet to the Sun

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

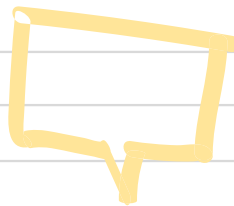




A picture always reinforces the concept



Images reveal large amounts of data, so remember: use an image instead of long texts



A picture always reinforces the concept

Images reveal large
amounts of data, so
remember: use an image
instead of long texts





**A PICTURE IS
WORTH A
THOUSAND
WORDS**



**A PICTURE IS
WORTH A
THOUSAND WORDS**



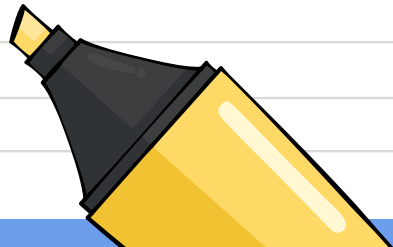
**A PICTURE IS
WORTH A
THOUSAND WORDS**

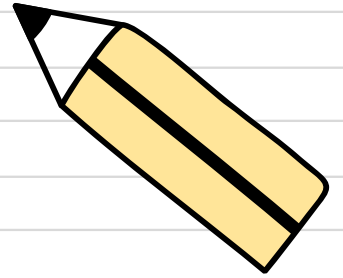
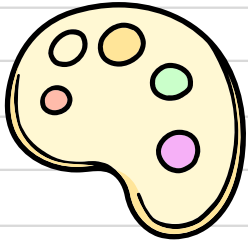




AWESOME WORDS

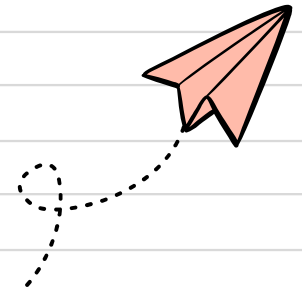
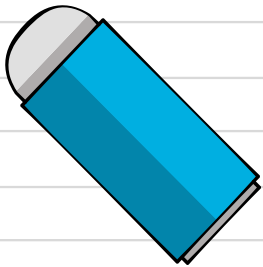
Because key
words are great
for catching your
audience's
attention





AWESOME WORDS

Key words are great for catching your audience's attention

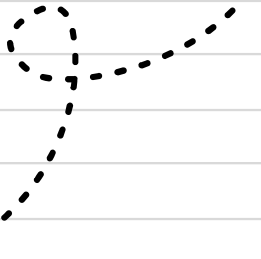
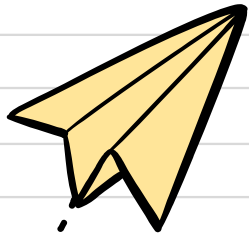




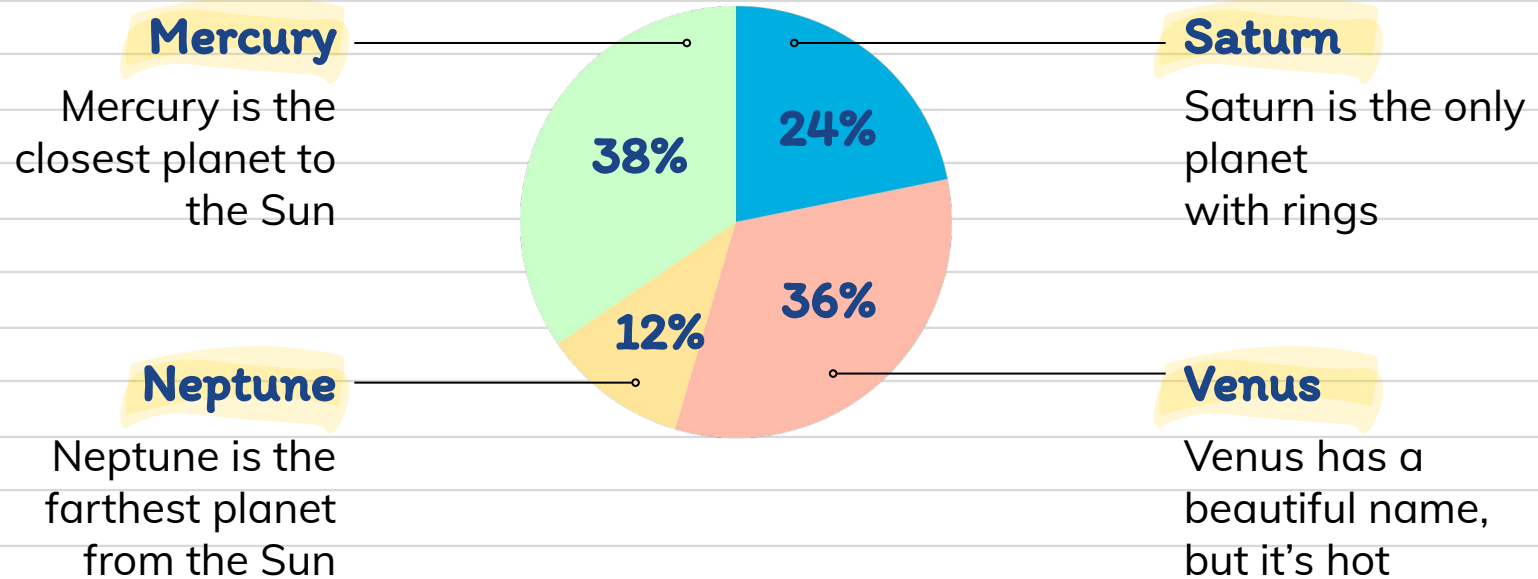
AWESOME

WORDS

Key words are great for catching your audience's attention

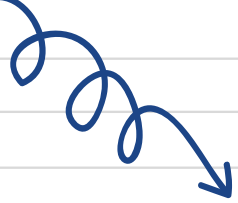


This is a graph

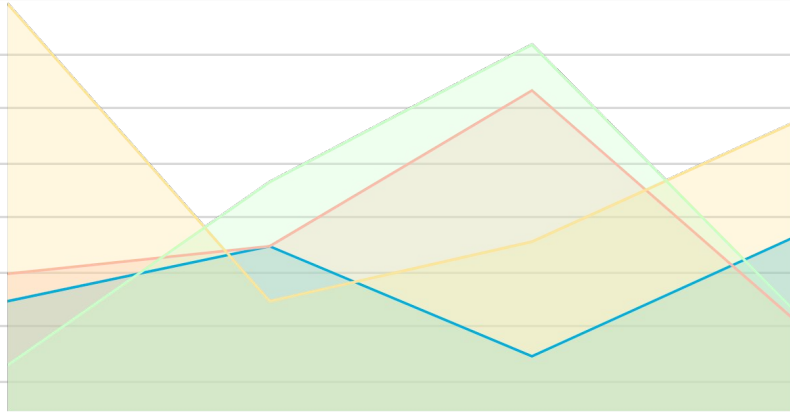


Follow the link in the graph to modify its data and then paste the new one here. **For more info, click here**





This is a graph



Follow the link in the graph to modify its data and then paste the new one here. **For more info, click here**

30% Venus

Venus has a beautiful name, but it's hot

50% Mercury

Mercury is the closest planet to the Sun

10% Mars

Despite being red, Mars is a cold place

10% Saturn

Saturn is the only planet with rings



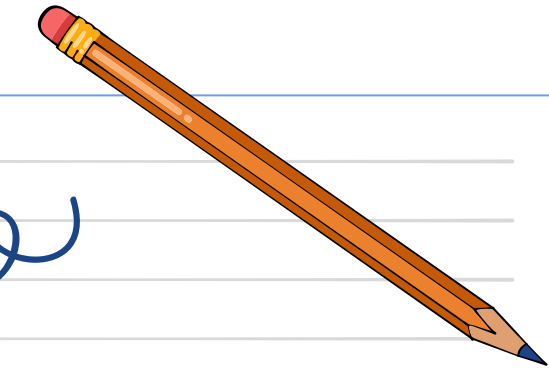
Here you have four ideas

Mercury

Mercury is the closest planet to the Sun

Mars

Despite being red, Mars is a cold place



Venus

Venus has a beautiful name, but it's hot

Saturn

Saturn is the only planet with rings

You can use two columns



Mars

Mars is a cold place. It's full of iron oxide dust, which gives the planet its reddish cast

Jupiter

It's the biggest planet in the Solar System and the fourth-brightest object

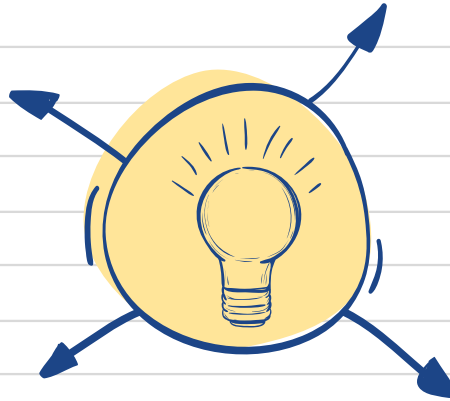
How about the percentages?

30%

Mercury is the closest planet to the Sun

22%

Saturn is a gas giant and the planet with rings



15%

Despite being red, Mars is a cold place

45%

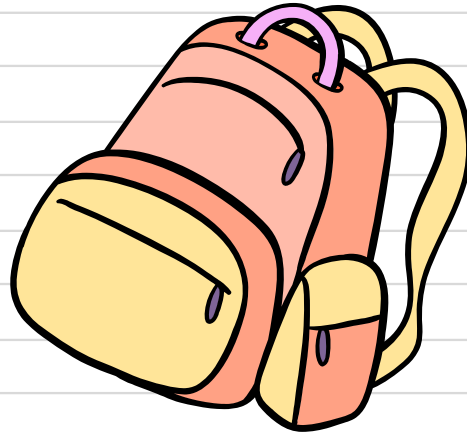
Venus has a beautiful name, but it's hot



How about the percentages?

30%

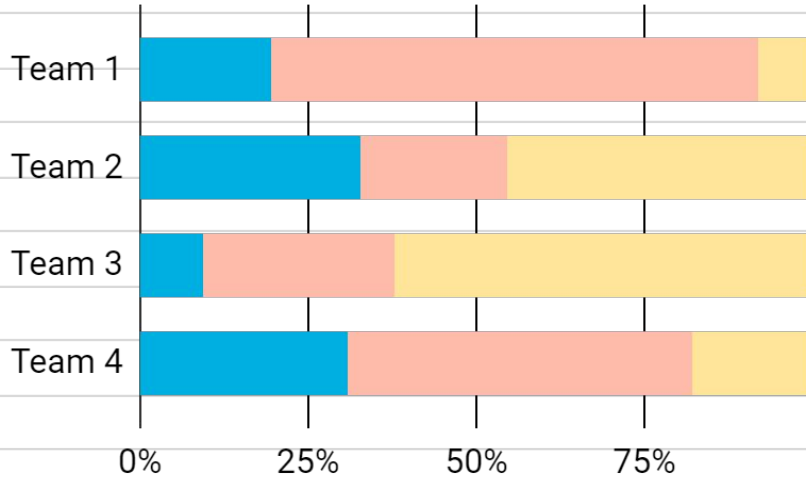
Mercury is the closest planet to the Sun



70%

Despite being red, Mars is a cold place

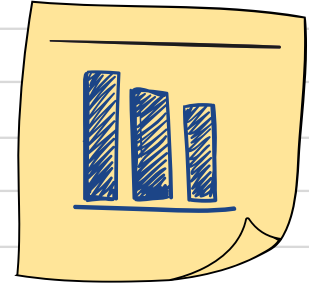
This is a graph



Follow the link in the graph to modify its data and then paste the new one here. **For more info, click here**

Mars

Despite being red, Mars is a cold place



Venus

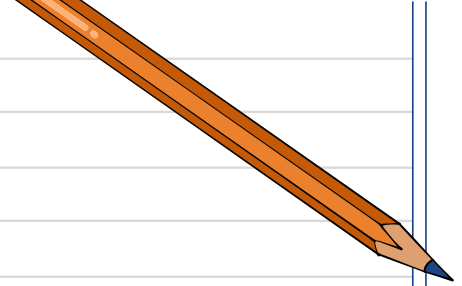
Venus has a beautiful name, but it's hot

Saturn

Saturn is the only planet with rings. It's made of gas

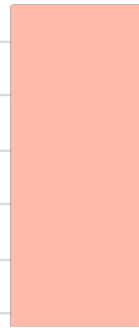


This is a graph



26% Mercury

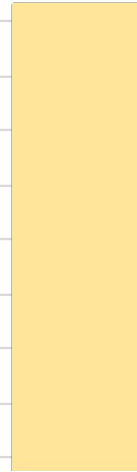
Mercury is the closest planet to the Sun



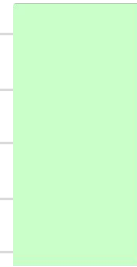
Mercury



Mars



Venus



Saturn

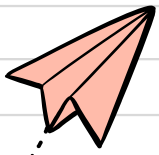
Mars 24%

Despite being red, Mars is a very cold place

Saturn 12%

Saturn is the only planet with rings. It's made of gas

Follow the link in the graph to modify its data and then paste the new one here. [For more info, click here](#)



Reviewing concepts is usually a good idea

Mercury

Mercury is the closest planet to the Sun

Venus

Venus has a beautiful name, but it's hot

Mars

Despite being red, Mars is a cold place

Neptune

Neptune is the farthest planet from the Sun

Saturn

Saturn is the only planet with rings

Earth

The Earth it's the third planet from the Sun



Reviewing concepts is usually a good idea



Mercury

Mercury is the closest planet to the Sun

Saturn

Saturn is the only planet with rings



Neptune

Neptune is very far from the Sun

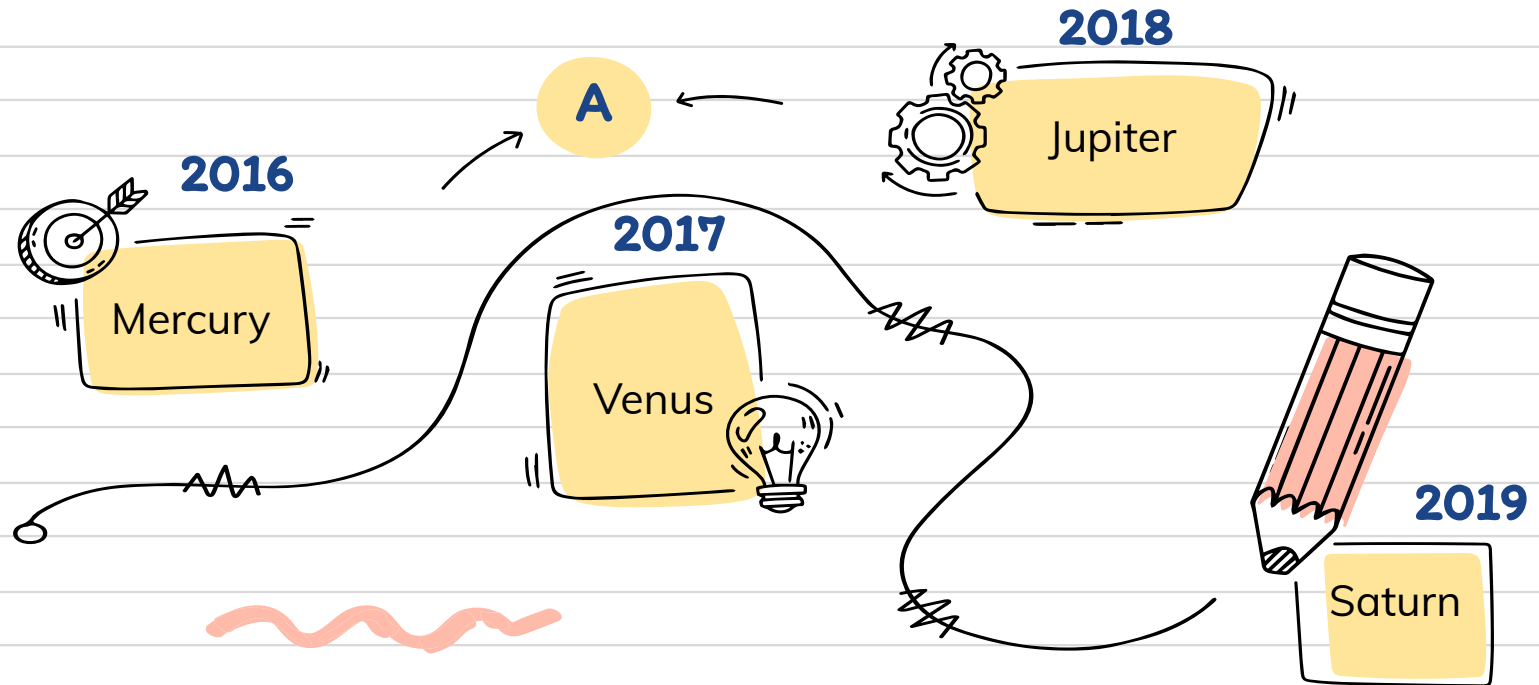
Venus

Venus has a beautiful name, but it's hot

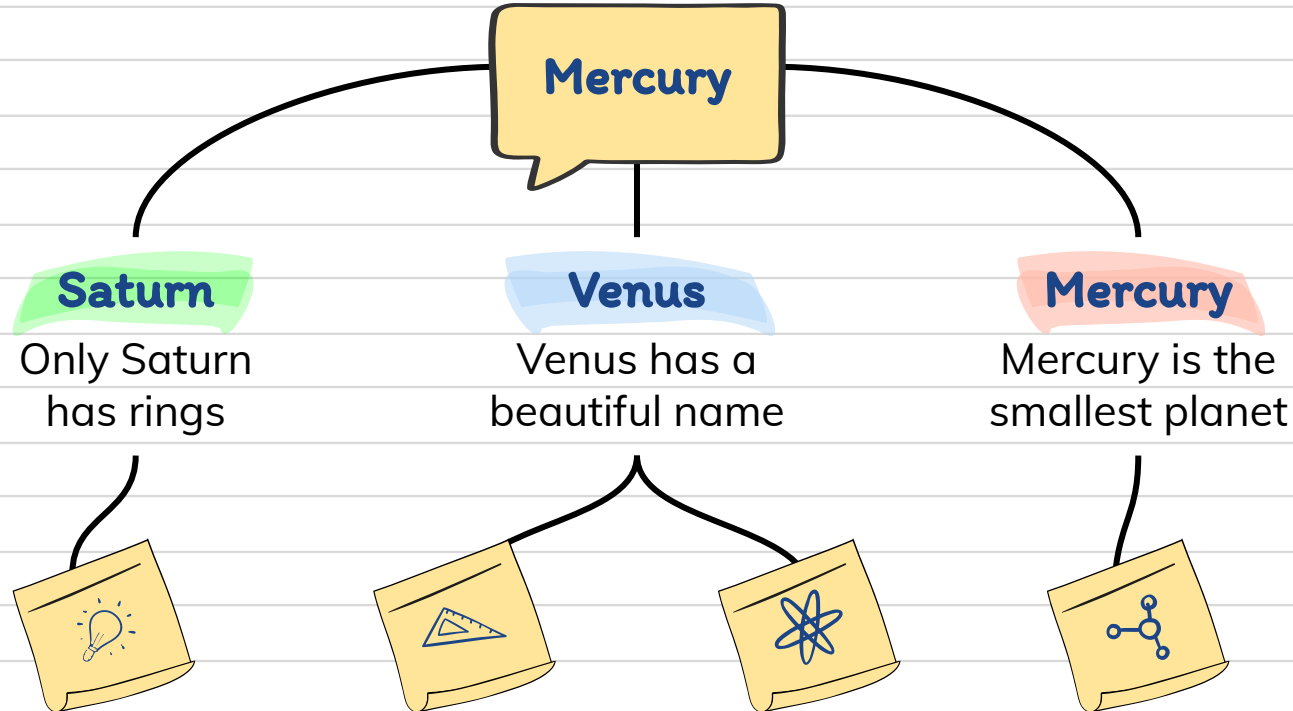
Mars

Despite being red, Mars is a cold place

Infographics make your idea understandable...



Infographics make your idea understandable...

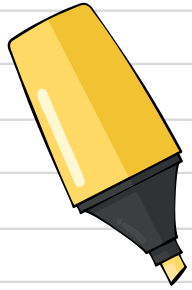


... and tables do the same!



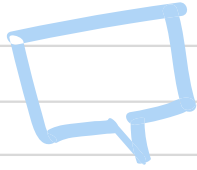
	Mass (Earths)	Diameter (Earths)	Surface gravity (Earths)
Mercury	0.06	0.38	0.38
Mars	0.11	0.53	0.38
Saturn	95.2	9.4	1.16



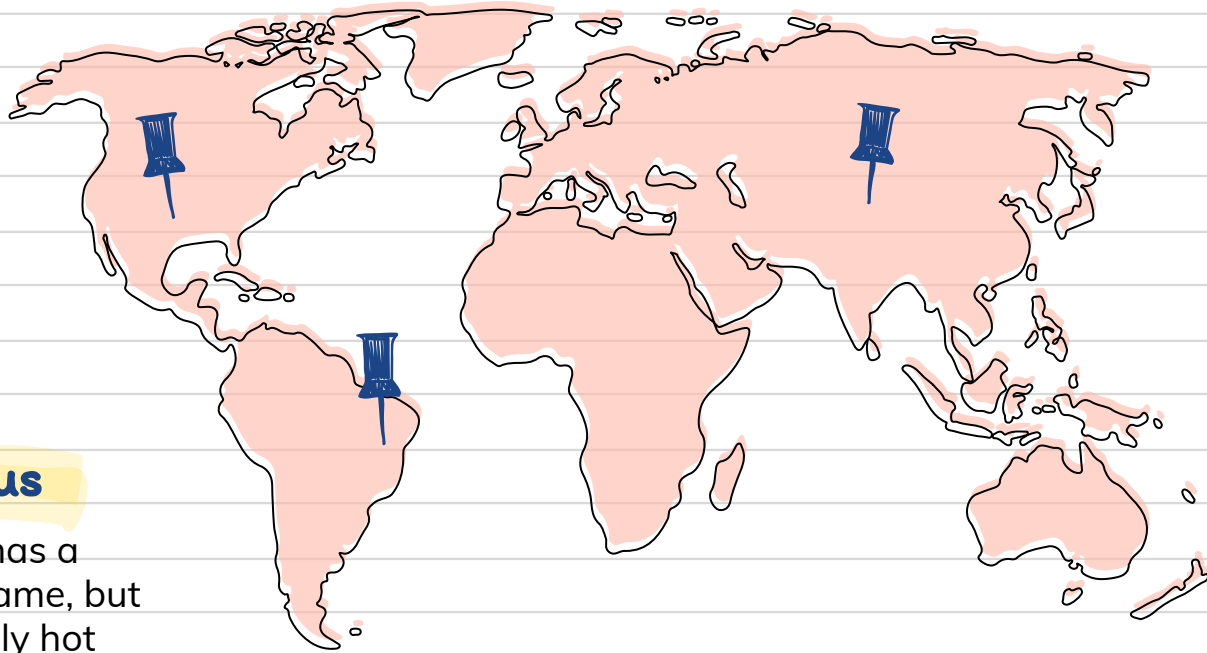


Students notes

	Math	English	Arts	Chemistry
Jack Bright	10	7	6	10
Anna Connor	8	9	10	7
Burt Light	9	8	7	10
Carmen Blue	7	10	8	6



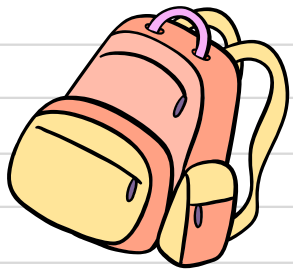
This is a map



Venus

Venus has a beautiful name, but it's terribly hot





This is a map

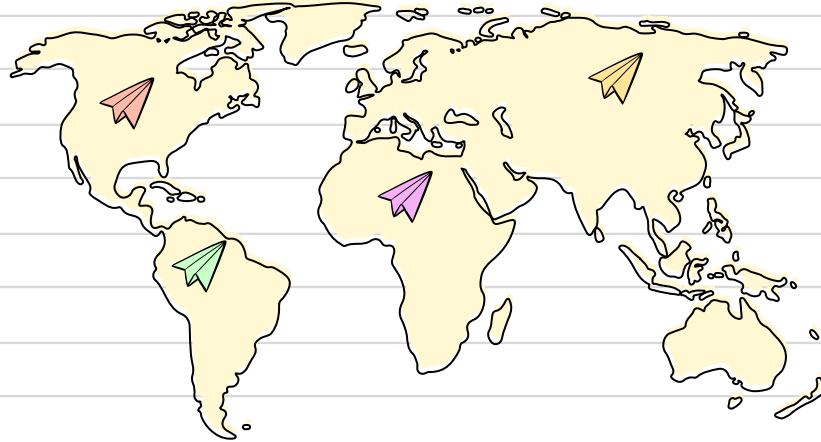


Mercury

Mercury is the
closest planet

Saturn

Saturn is the
planet with rings



Mars

Despite being
red, Mars is cold

Venus

Venus has a
beautiful name



A timeline always works well

Mercury is the
closest planet to
the Sun

Venus has a
beautiful name,
but it's hot

Despite being
red, Mars is a
cold place

2017

2019

2016

2018

2020

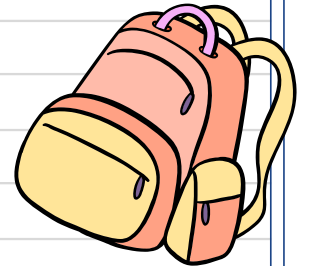
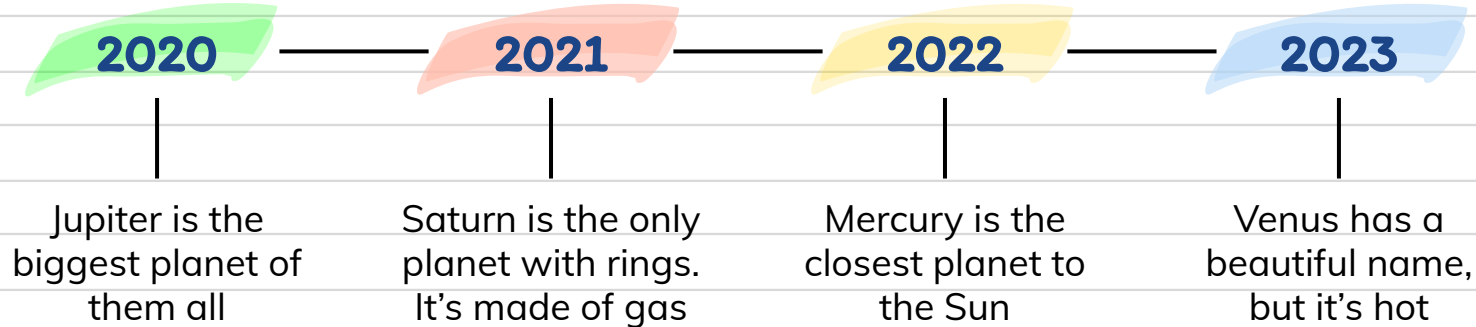
Jupiter is the
biggest planet of
them all

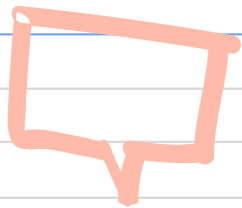
Saturn is the only
planet with rings.
It's made of gas





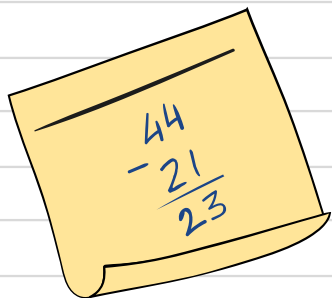
A timeline always works well

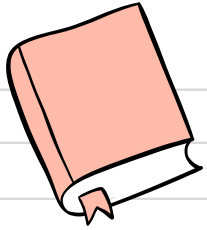




4,498,300,000

Big numbers catch your audience's
attention

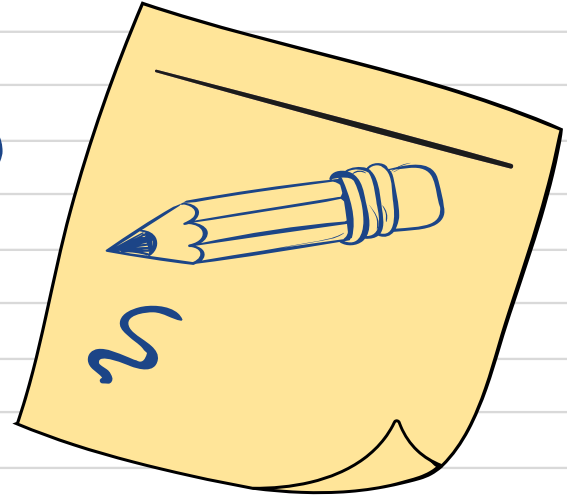


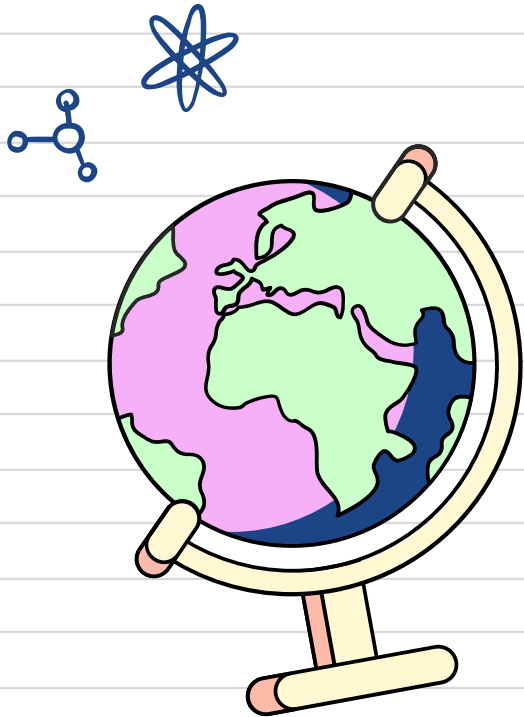


745,654,812,25

Big numbers catch your audience's attention

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$





845,125,654

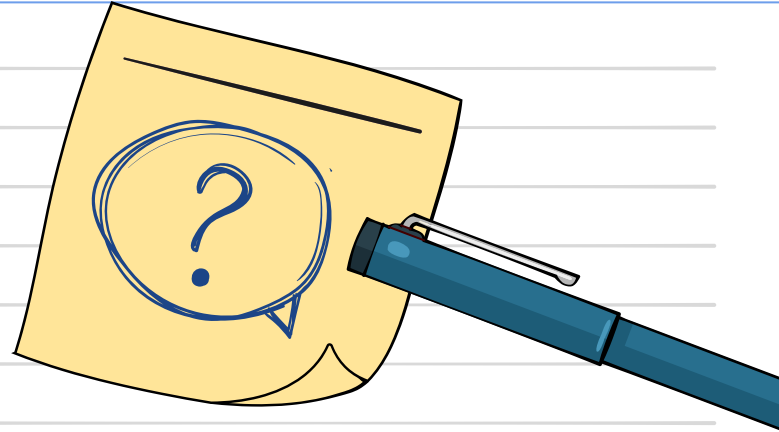
Big numbers catch your audience's attention

333,000

Earths is the Sun's mass

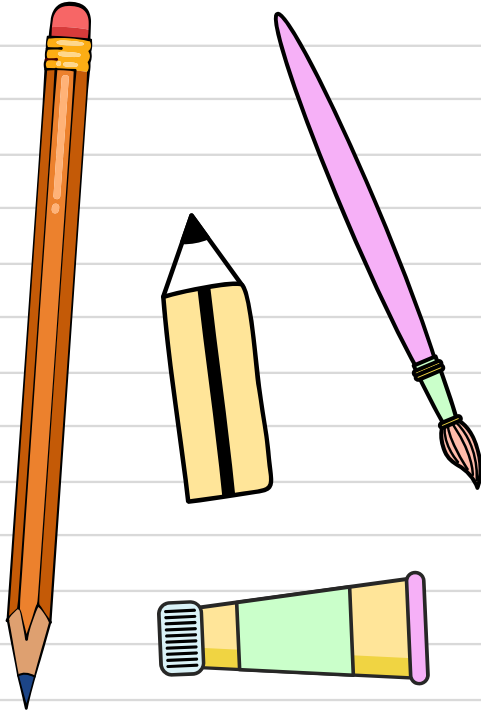
24h 37m 23s

is Jupiter's rotation period



386,000 km

between Earth and the Moon



475,125

Mercury is the closest planet to the Sun

871,365

Venus has a beautiful name, but it's hot

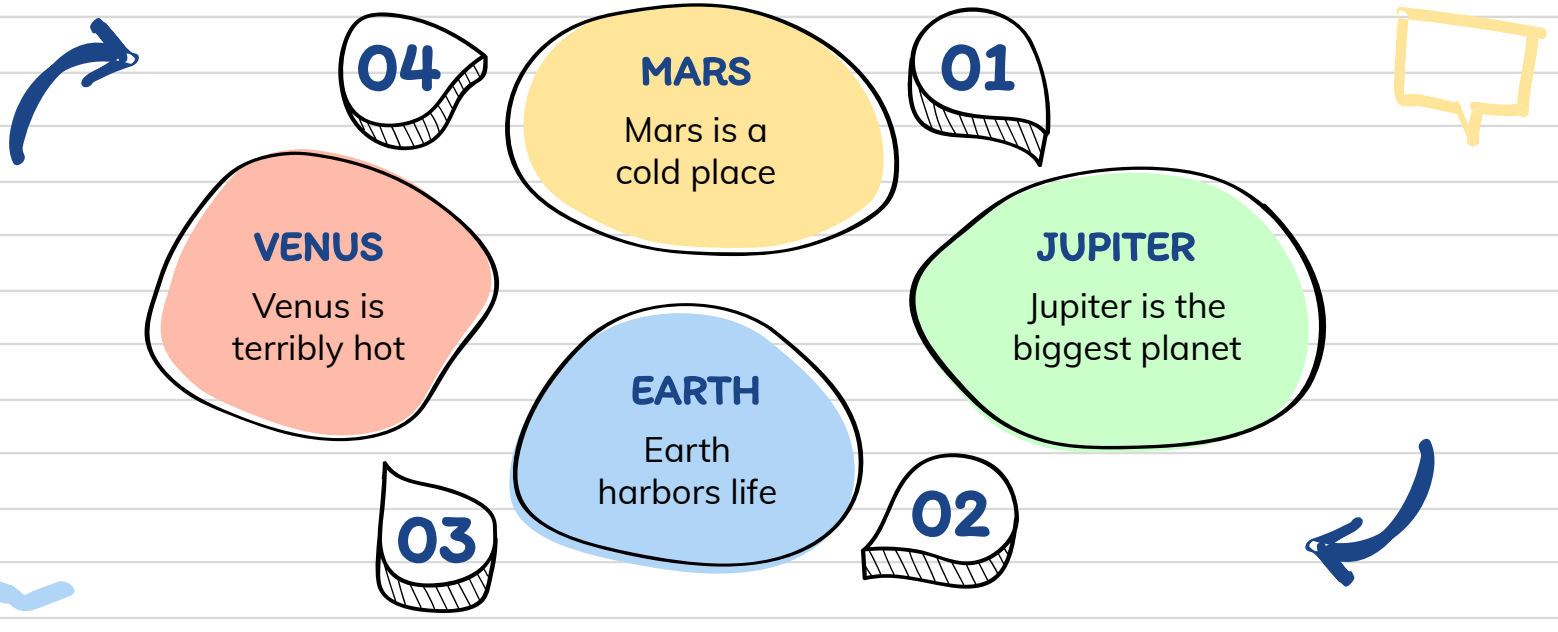
984,263

Jupiter is the biggest planet of them all

174,96+

Saturn is the only planet with rings

Reinforce the concept using infographics!



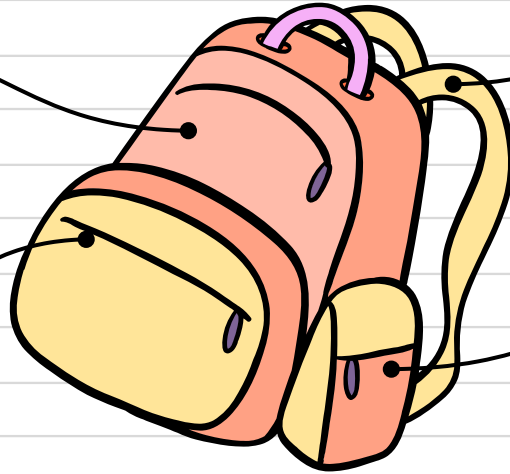
Reinforce the concept using infographics!

Mercury

Mercury is the smallest planet

Saturn

Saturn is the only planet with rings



Mars

Despite being red, Mars is cold

Venus

Venus has a beautiful name



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Basic

\$35

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your service

Characteristic
Characteristic

Pro

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Characteristic
Characteristic

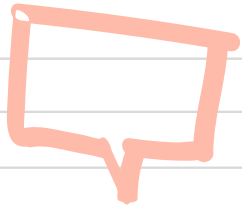
Premium

\$85

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your service

Characteristic
Characteristic





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- Characteristic
- Characteristic
- Characteristic

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- Characteristic

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- Characteristic
- Characteristic

\$50

Premium

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- Characteristic
- Characteristic

\$100



Online education process

01

Saturn

Saturn is the only planet with rings

02


Venus

Venus has a beautiful name

03

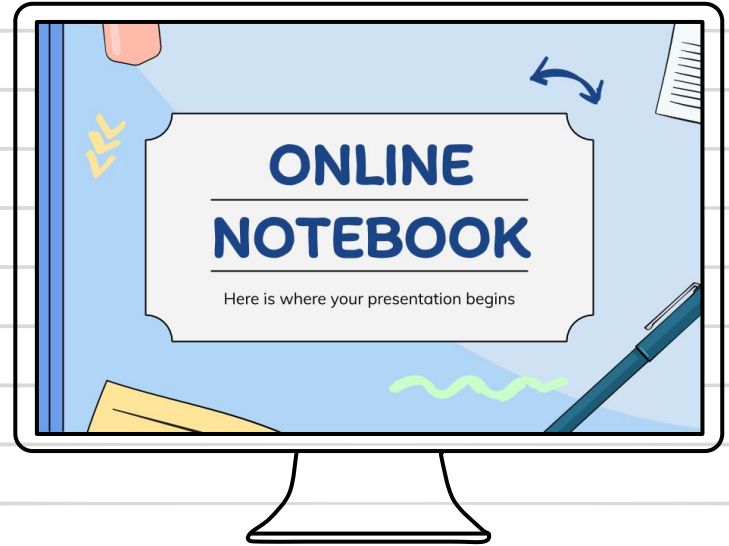
Mercury

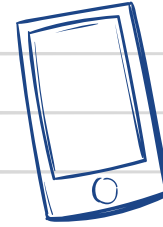
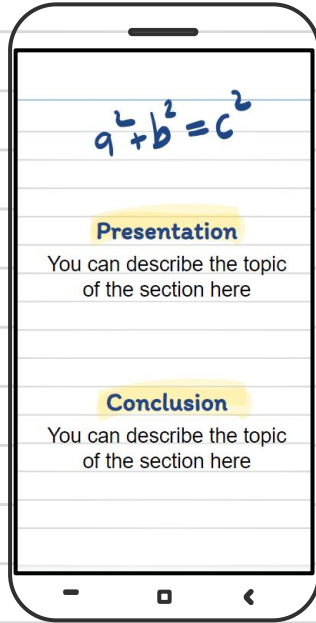
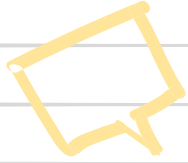
Mercury is the smallest planet



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Delete this one, add
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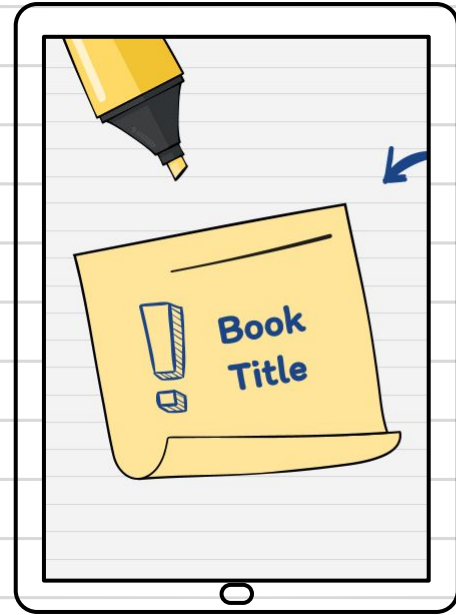
Mobile web

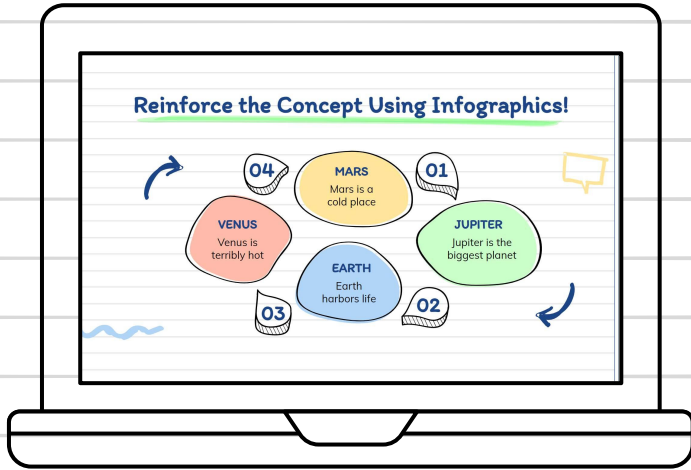
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Tablet app



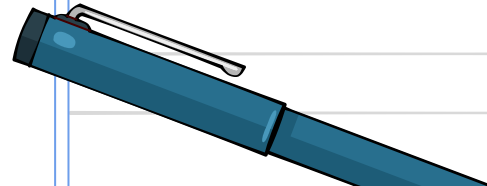
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Laptop software

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Our team



Helena Patterson

You can replace the star on the screen with a picture of this person



Ann Smith

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John Doe

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Our team




Sarah Clear

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Jonathan Blue

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on the screen with a
picture of this person





Thanks!

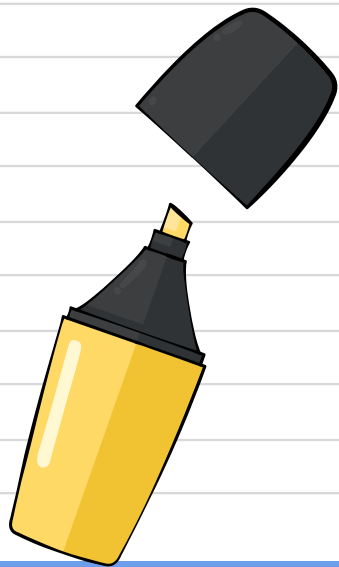


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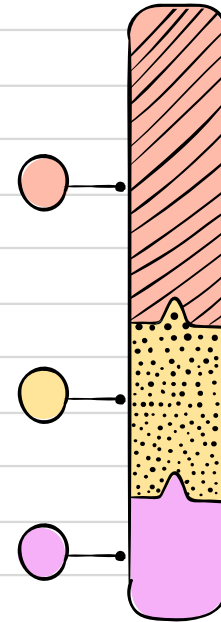
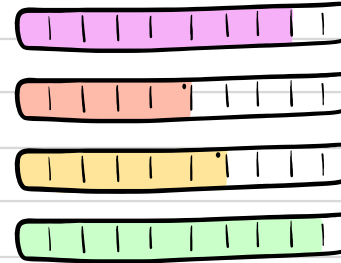
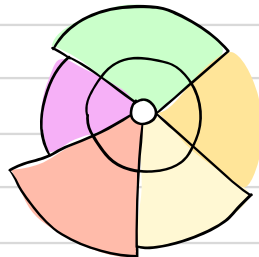
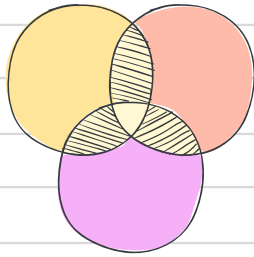
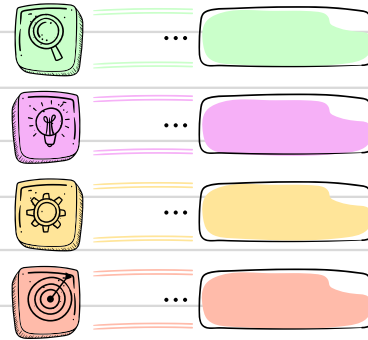
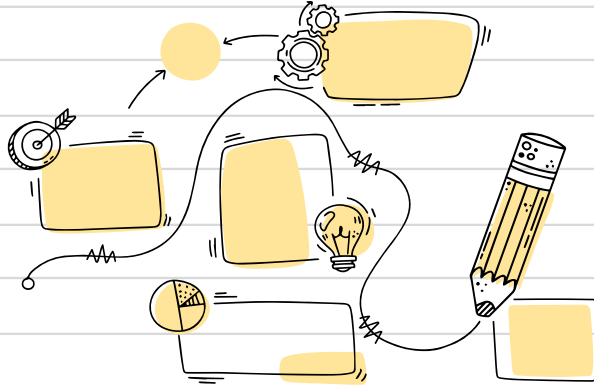
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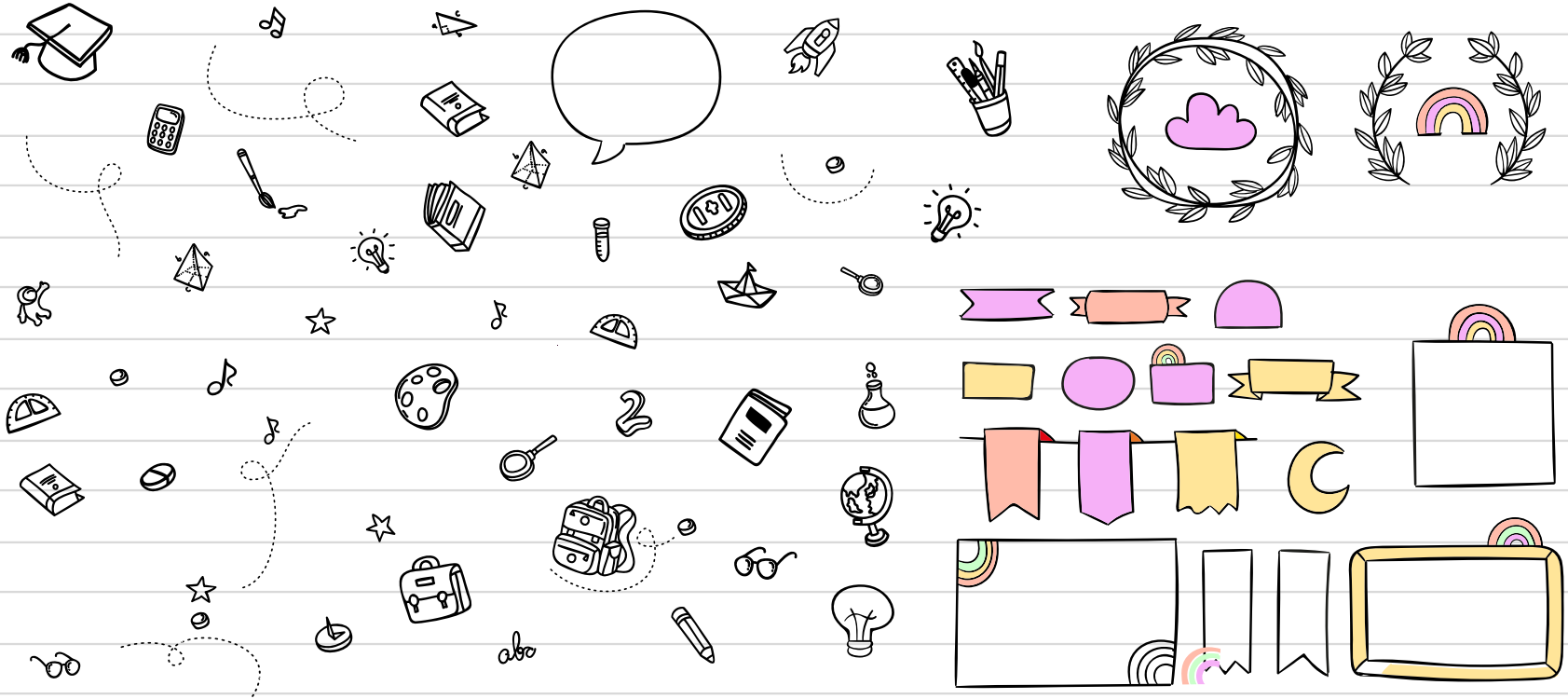
Learning icon pack



Alternative infographic elements



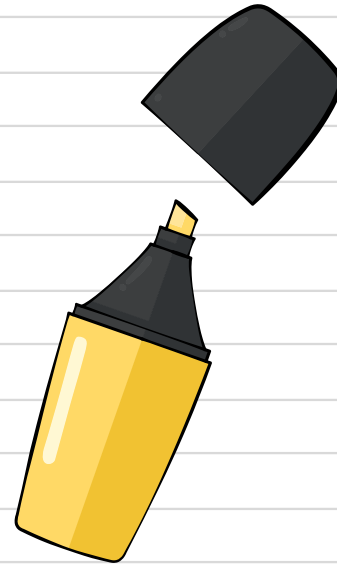
Alternative resources



Alternative resources

Vector

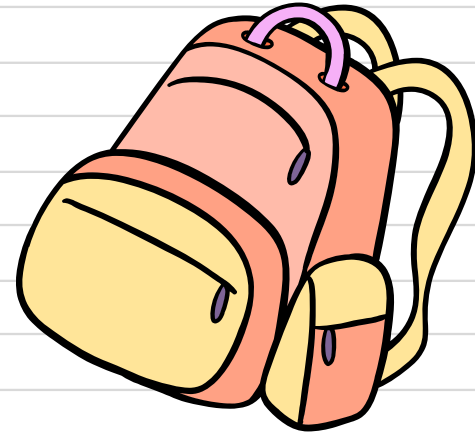
- Hand drawn back to school background (I)
- Flat back to school background
- Hand drawn back to school background (II)
- Hand drawn back to school
- Doodle blogging concept
- Background welcome to school
- Hand drawn bullet journal elements (I)
- Hand drawn infographic element
- Hand drawn bullet journal elements (II)
- Hand drawn bullet journal elements (III)
- Hand drawn design back to school concept (III)



Alternative resources

Photo

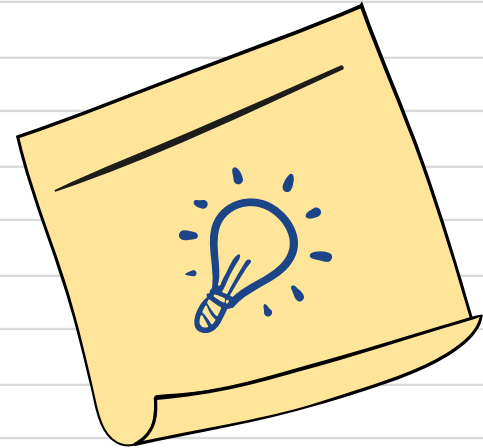
- Close up on still life of hard exams (I)
- Close up on still life of hard exams (II)
- Close up people in class
- Close up man taking notes
- Close up man sitting in class
- Close up woman raising hand
- Medium shot people studying
- Medium shot smiley girls at school



Resources

Vector

- Hand drawn notebook with pencils and material
- Travel pattern with elements and dash lines
- Hand drawn arrow collection
- Assortment of arrows highlighter
- Cartoon math elements background
- Planning elements sample
- Collection of colored notes with adhesive tap
- Online learning background with variety of hand-drawn items
- Background of mobile phone with hand-drawn items
- Hand drawn timeline infographic template
- Hand drawn template timeline infographic



Photo

- Top view of graphic designer working with graphic tablet and laptop
- Flat lay of back to school concept with copy space



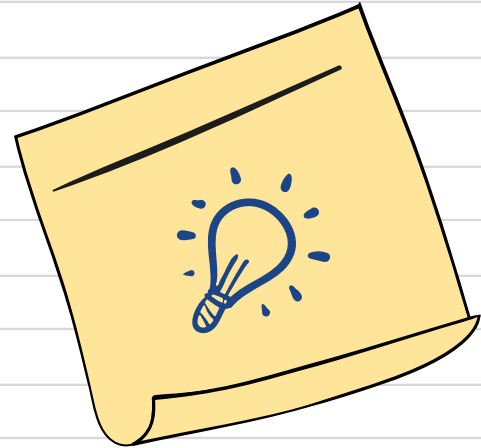
Resources

Vector

- Hand drawn back to school background
- Back to school background
- Hand drawn back to school background
- Bullet journal elements in pastel colours

Photo

- Portrait of college girl in front of her mates
- Portrait of college student holding some books
- Close up woman reading book
- Young students during group study researching together
- Smiling teens at desk
- Arrangement of education day elements with blackboard
- Messy arrangement of stationery



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Rafiki



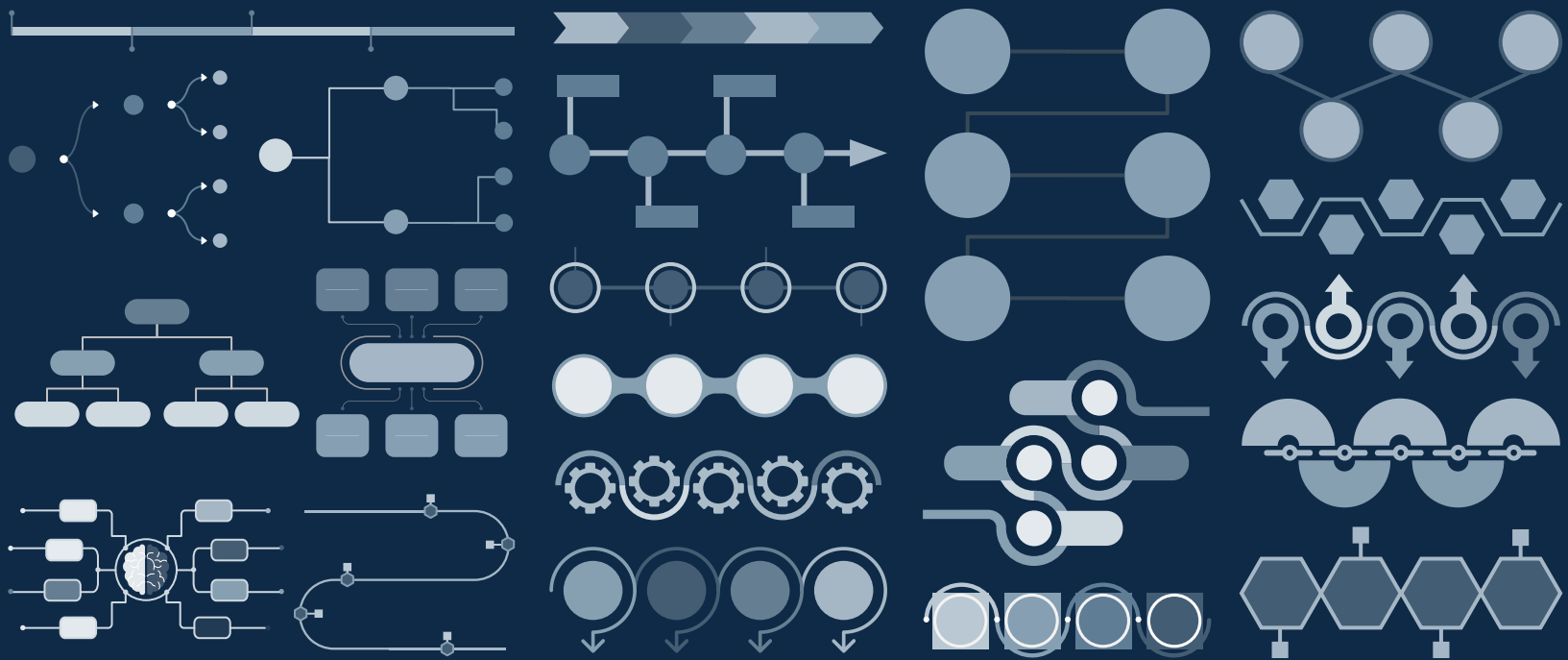
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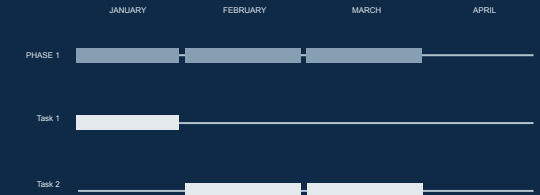
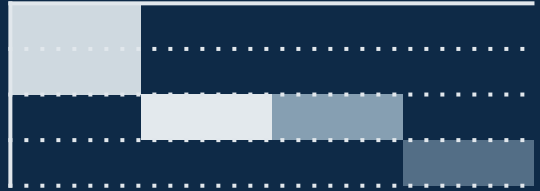
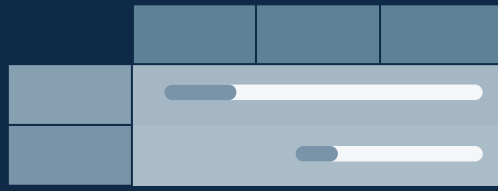
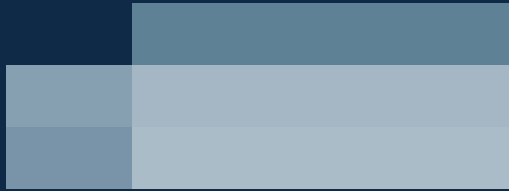
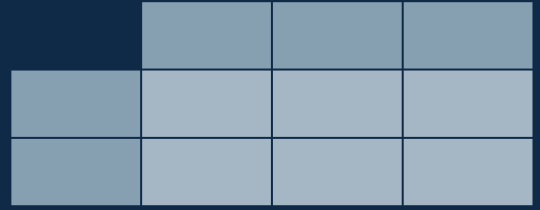
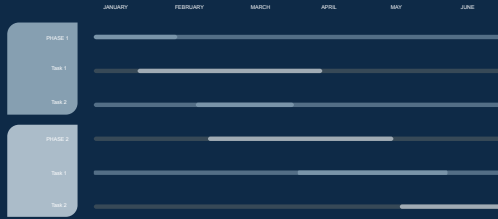
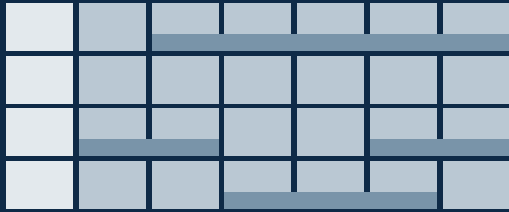
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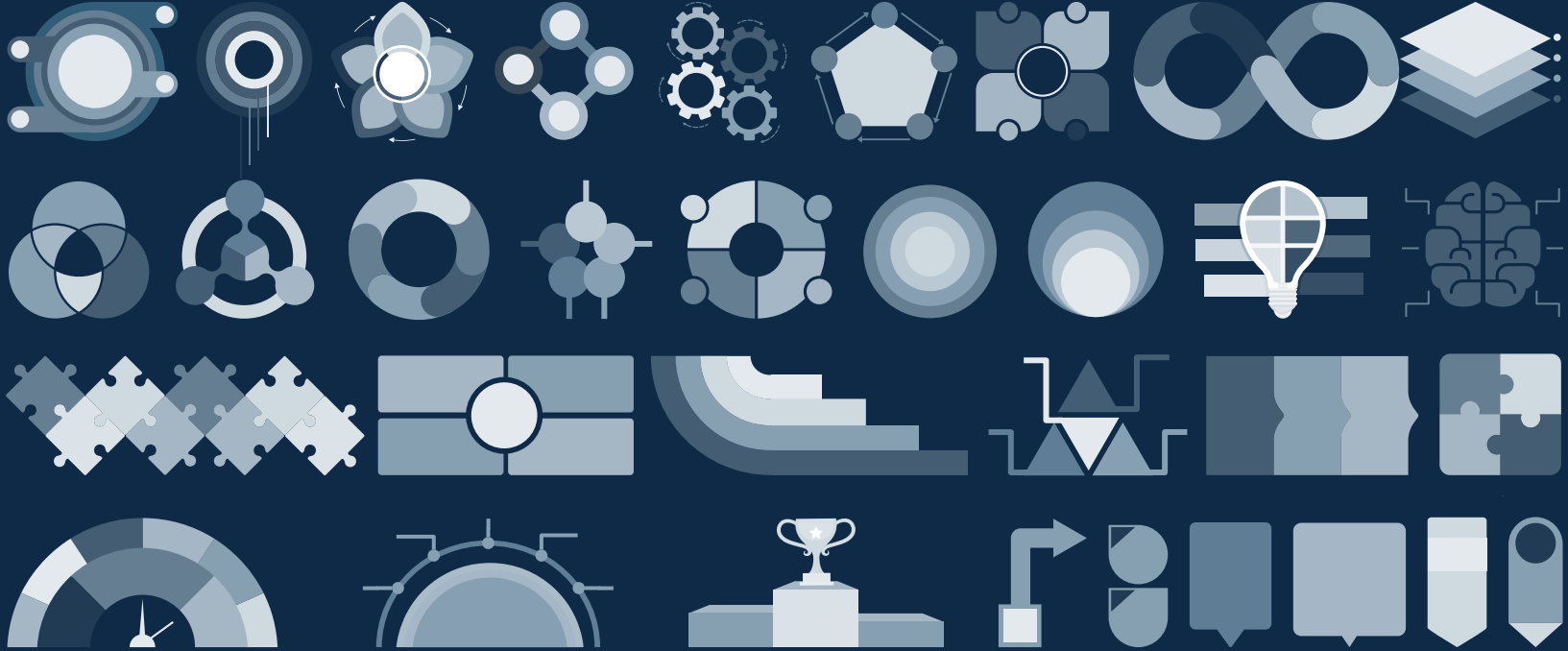
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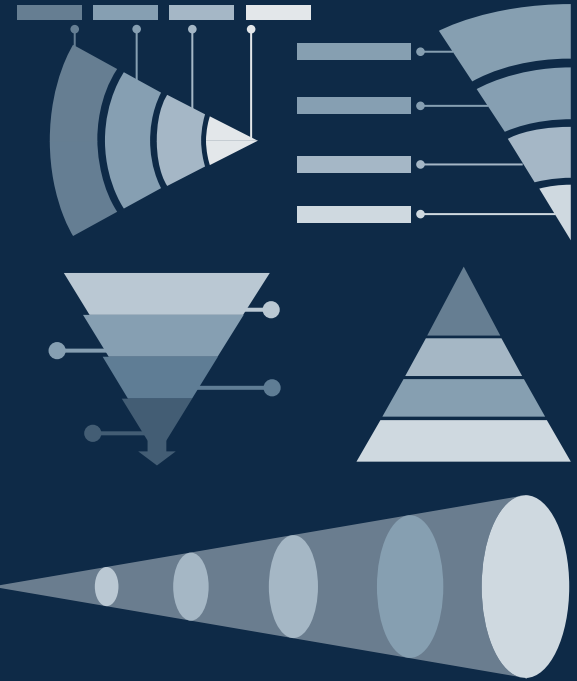
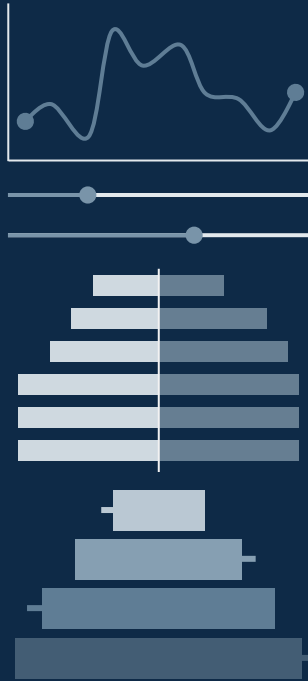
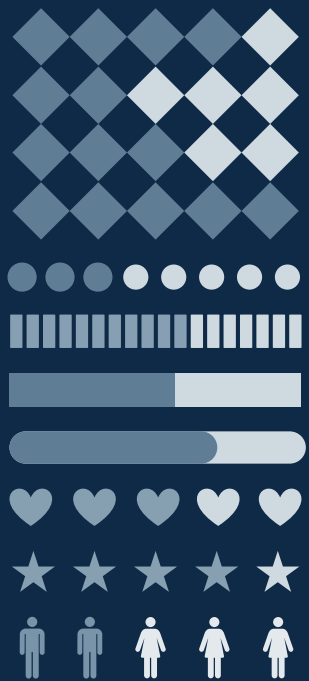
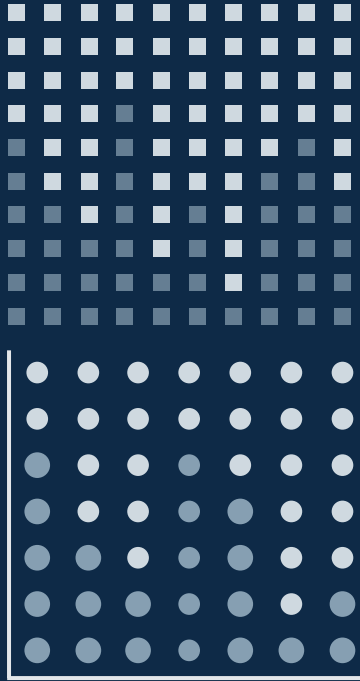












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