



# Process of developing e-content *For* STEM



Dr. Ajita Deshmukh  
MIT-ADT University

# First Step

# ADDIE

Needs & Constraints

01

**ANALYZE**

Outcome based Activities

02

**DESIGN**

Production

03

**DEVELOP**

Put to Action

04

**IMPLEMENT**

What worked/didn't?

05

**EVALUATE**



**Let's go stepwise!**

**ADDIE**

**ANALYZE**

01

Needs & Constraints

**DESIGN**

02

Outcome based Activities

**DEVELOP**

03

Production

**IMPLEMENT**

04

Put to Action

**EVALUATE**

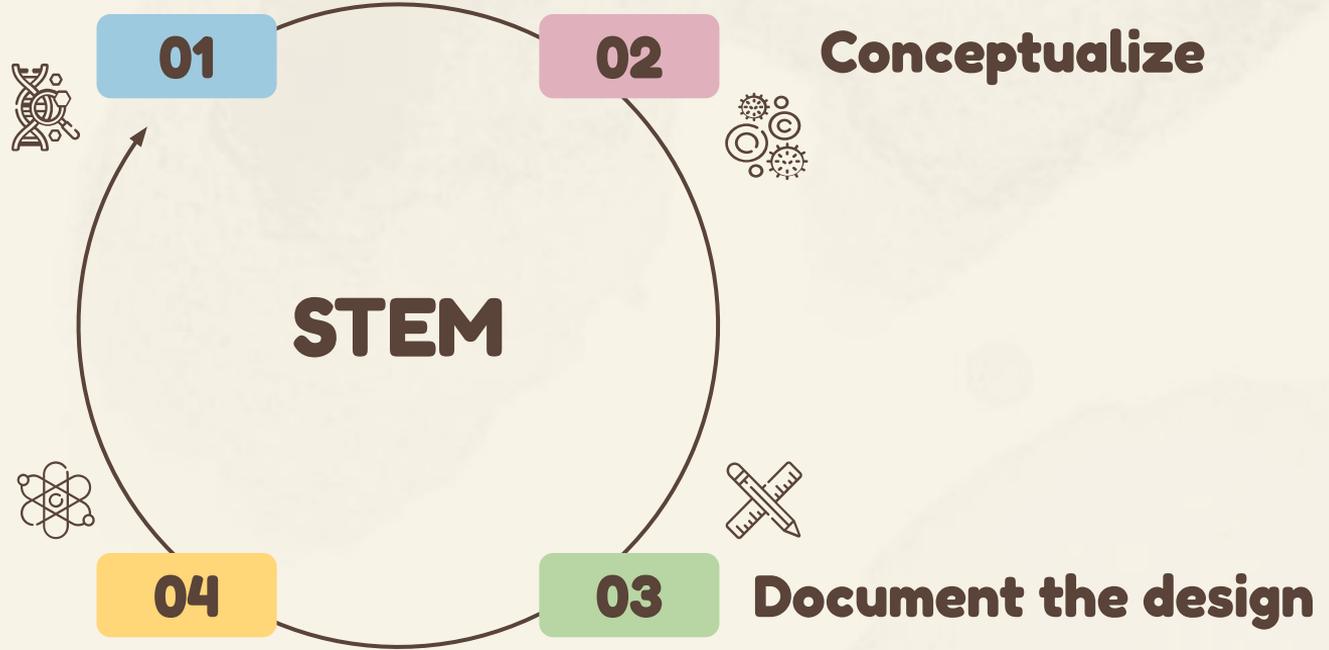
05

What worked/didn't?



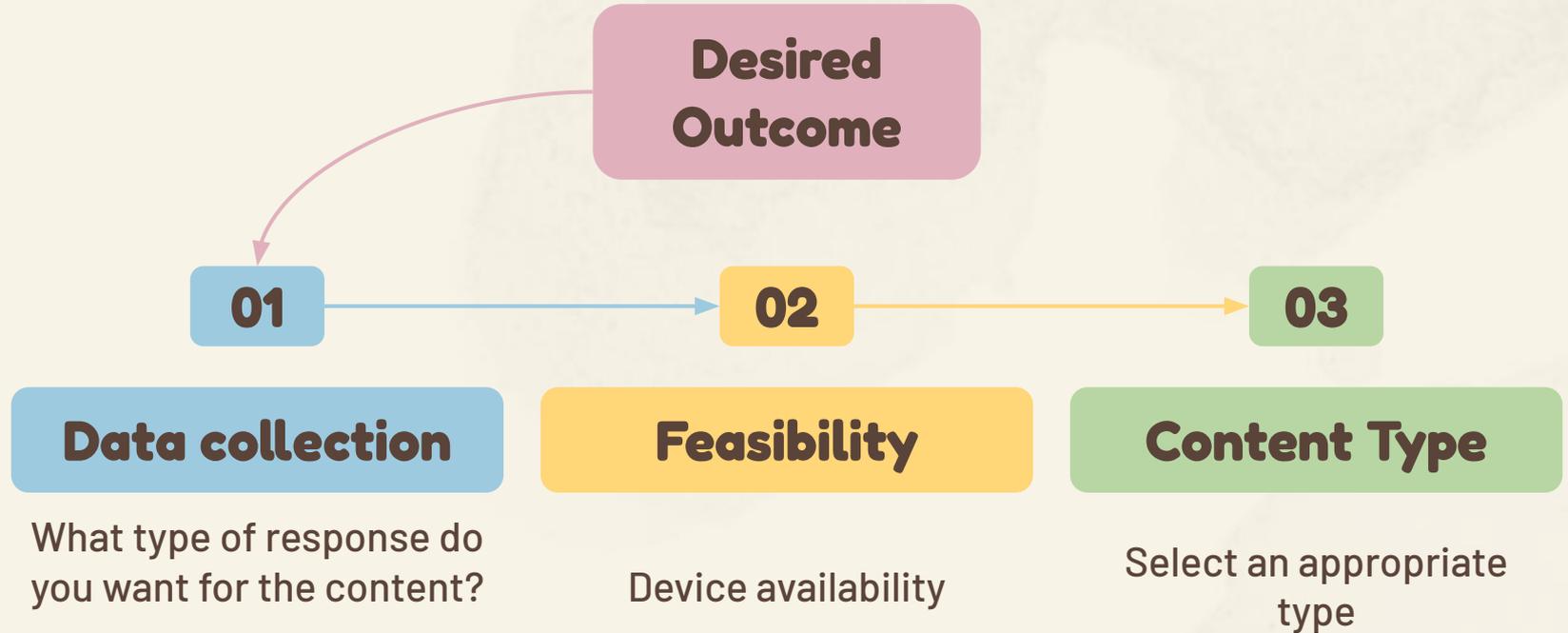
# Getting into the process

**Objectives & outcomes**

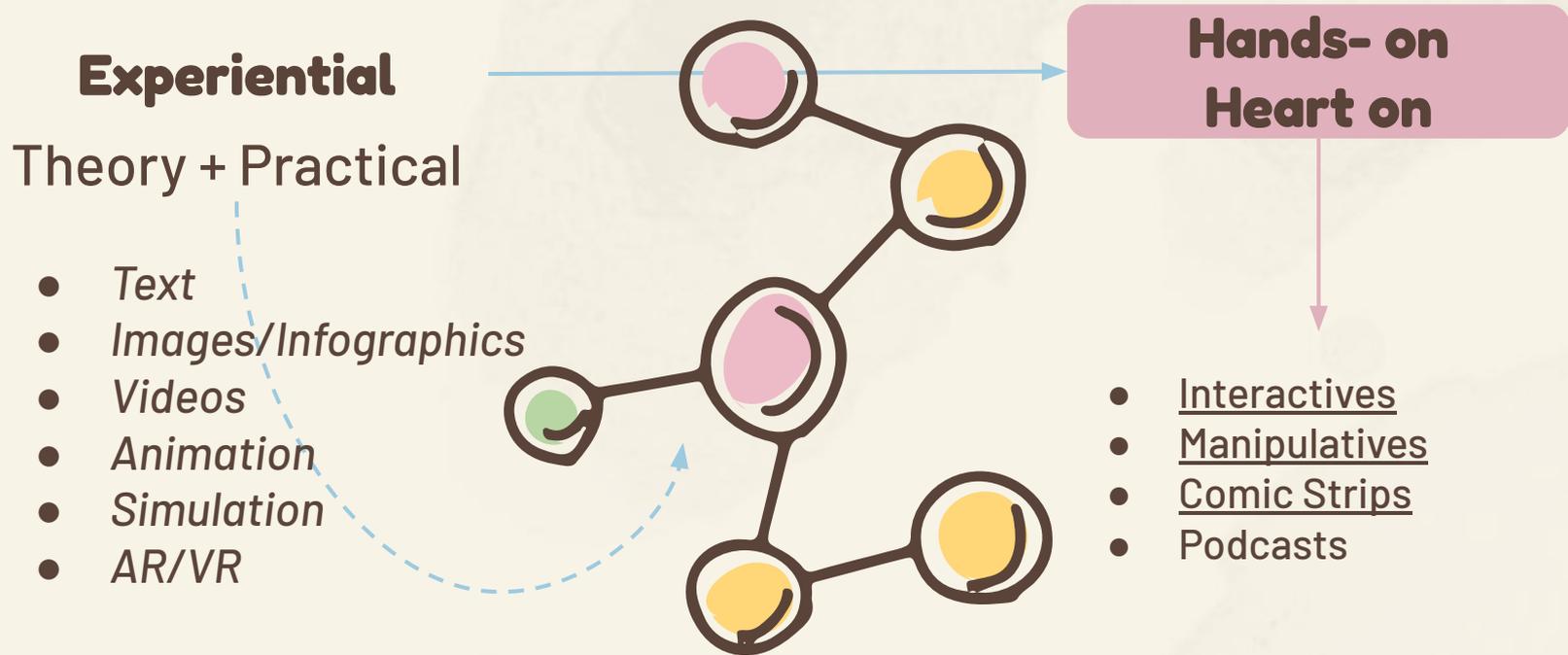


**Develop & Cultivate**

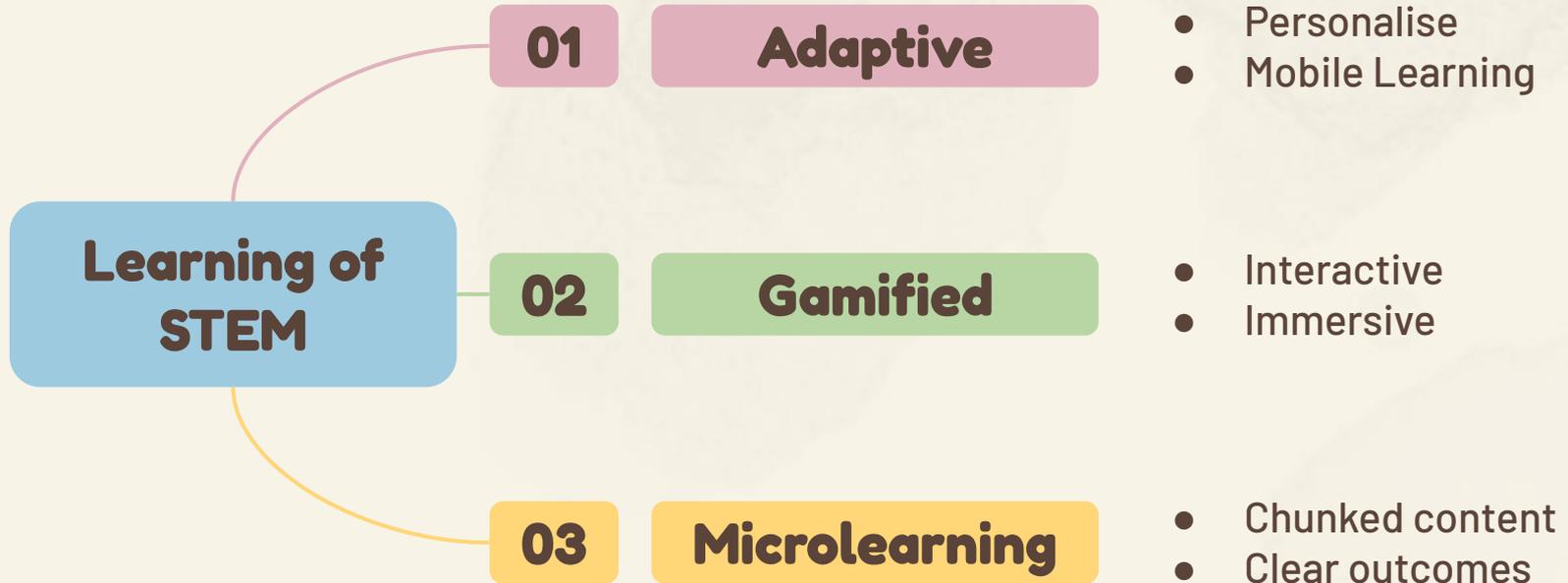
# Mapping the STEM e-content



# E-content in STEM



# What do students want?



# Mapping STEM content- examples



**Definition/  
Law/  
Short text**

Desired Outcome	Data collection	Type of e-content
Student should read	Via LMS- school computer lab	H5p- interactive/ Doodle video/
Student should be able to phrase the definition	PC, internet	Drag and drop correct words mark the words
Should be able to recite	Mobile phone only	Audio msg

# Mapping STEM content- examples



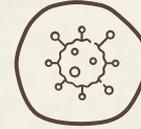
## Diagram

Desired Outcome	Data collection	Type of e-content
information about parts	Via LMS- school computer lab	H5p- interactive/ <u>crosswords</u>
Label the diagram	PC, internet	<u>Image hotspot</u> , Drag and drop
Draw/ Apply		Draw /Jigsaw puzzle

# Mapping STEM content- examples

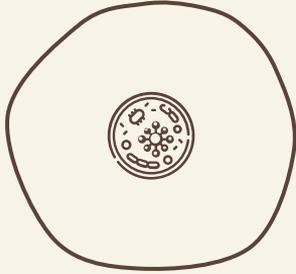


**Science  
Practical  
application**



<b>Desired Outcome</b>	<b>Data collection</b>	<b>Type of e-content</b>
Practical skill		Demonstration + practical at home
Application	Physical or virtual	Project
Create		Toy making/ Stop motion video

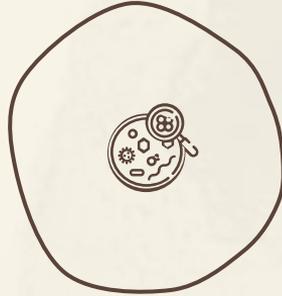
# Popular STEM content formats



01

## Podcasts

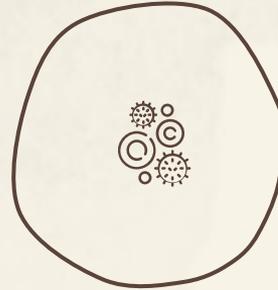
- Stories
- Interviews
- Experiences



02

## Comic books

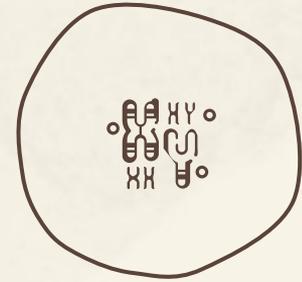
- Creative writing



03

## Gifs/Stickers

- Micro learning
- Creative Expression



04

## Games

- Challenge
- Concept building



**Science = curiosity + open-mindedness, + learning from failures.**

---

*Dr. Ajita Deshmukh*

# Popular STEM content formats

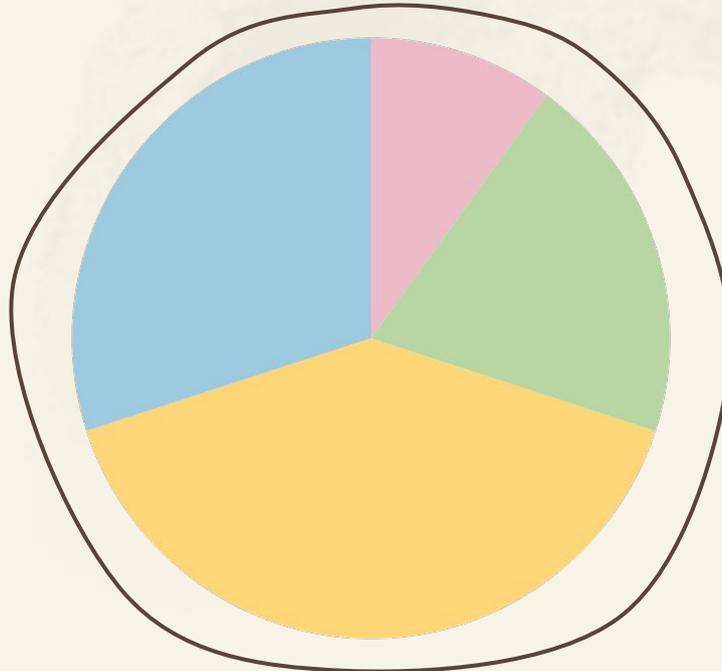
## Gap 2

Jupiter is a gas giant and the biggest planet

40%

## Synthesis

Mercury is the closest planet to the Sun



10%

## Mitosis

Neptune is the farthest planet from the Sun

20%

## Gap 1

Despite being red, Mars is a cold place

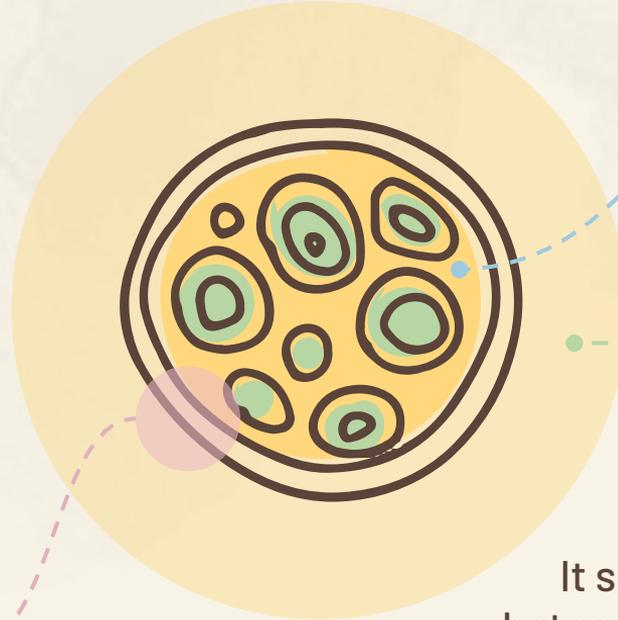
Follow the link in the graph to modify its data and then paste the new one here. [For more info, click here](#)

# STEM infographics

**Cells are considered the basic units of life**

All cells are surrounded by a structure called

**The cell membrane**



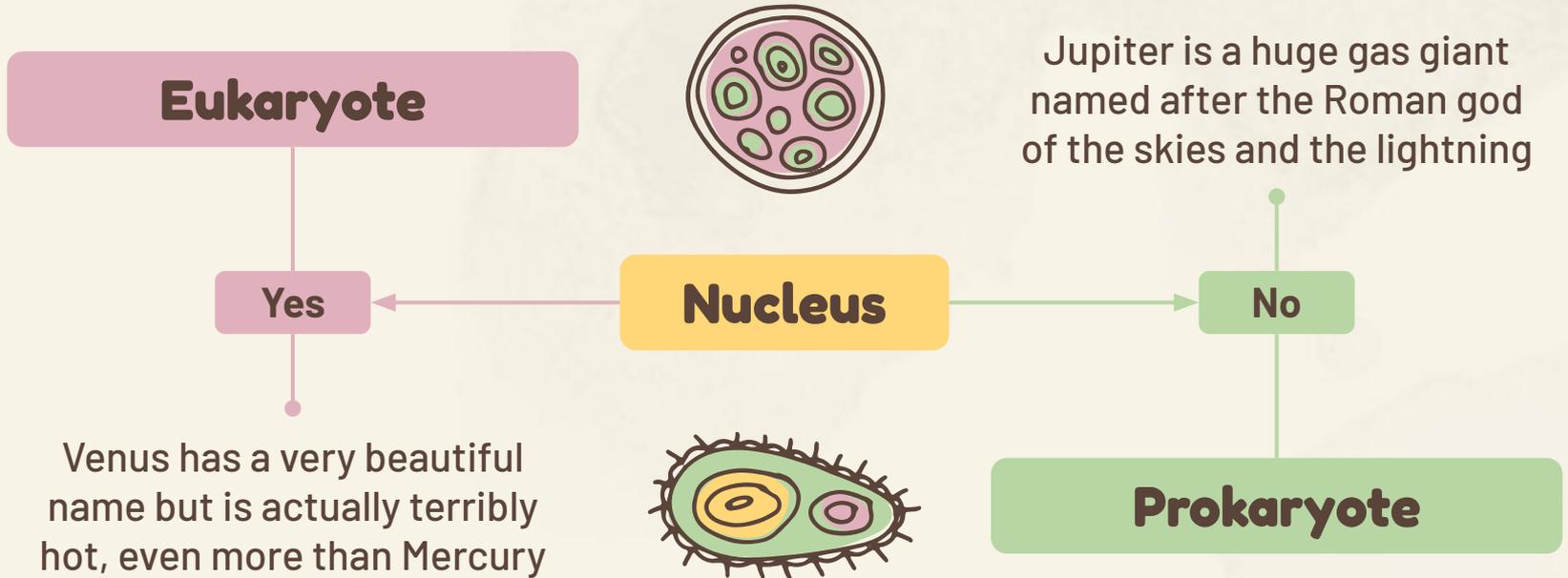
**Internal**



**External**

It serves as a boundary between the cell's internal and external environments

# STEM infographics



# STEM infographics

01

## Mitosis

- 4 stages
- Somatic cells
- Cellular proliferation
- 2 diploid cells



- New cells
- Similar basic steps
- Single parent cell

02

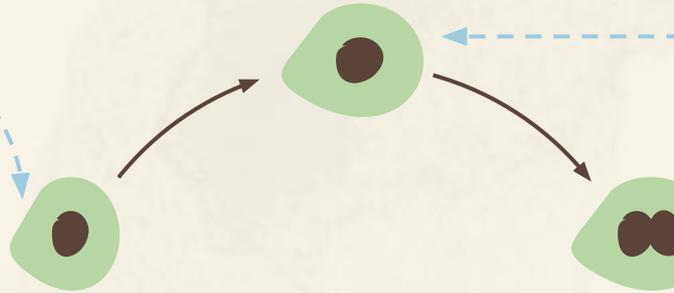
## Meiosis

- 8 stages
- Germ cells
- Reproduction
- 4 haploid cells

# STEM infographics

## Prophase

Jupiter is the biggest planet



## Prometaphase

Neptune is very far from the Sun



## Metaphase

Despite being red, Mars is a cold place



## Anaphase

Pluto is considered a dwarf planet



## Mitosis

## Cytokinesis

Mercury is quite a small planet



## Telophase

Venus is the second planet from the Sun



# STEM infographics

01

## Ribosomes

Jupiter is a gas giant and the biggest planet



02

## Lysosomes

Neptune is the farthest planet from the Sun

03

## Vacuoles

Mercury is the closest planet to the Sun



04

## Peroxisomes

Despite being red, Mars is actually a very cold place



# STEM infographics

01

## Matrix

Jupiter is a gas giant and the biggest planet

## Mitochondria

02

## Granules

Neptune is the farthest planet from the Sun

03

## Membrane

Mercury is the closest planet to the Sun

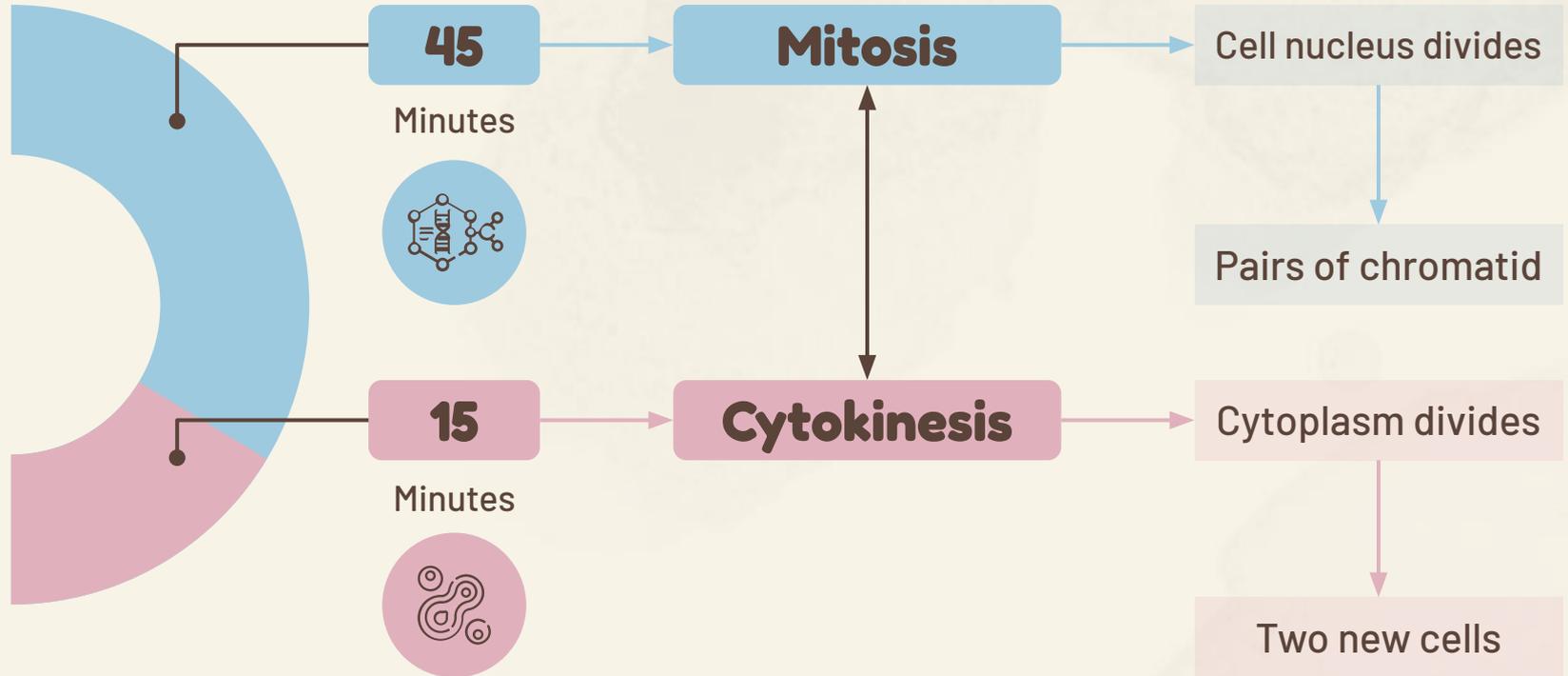


04

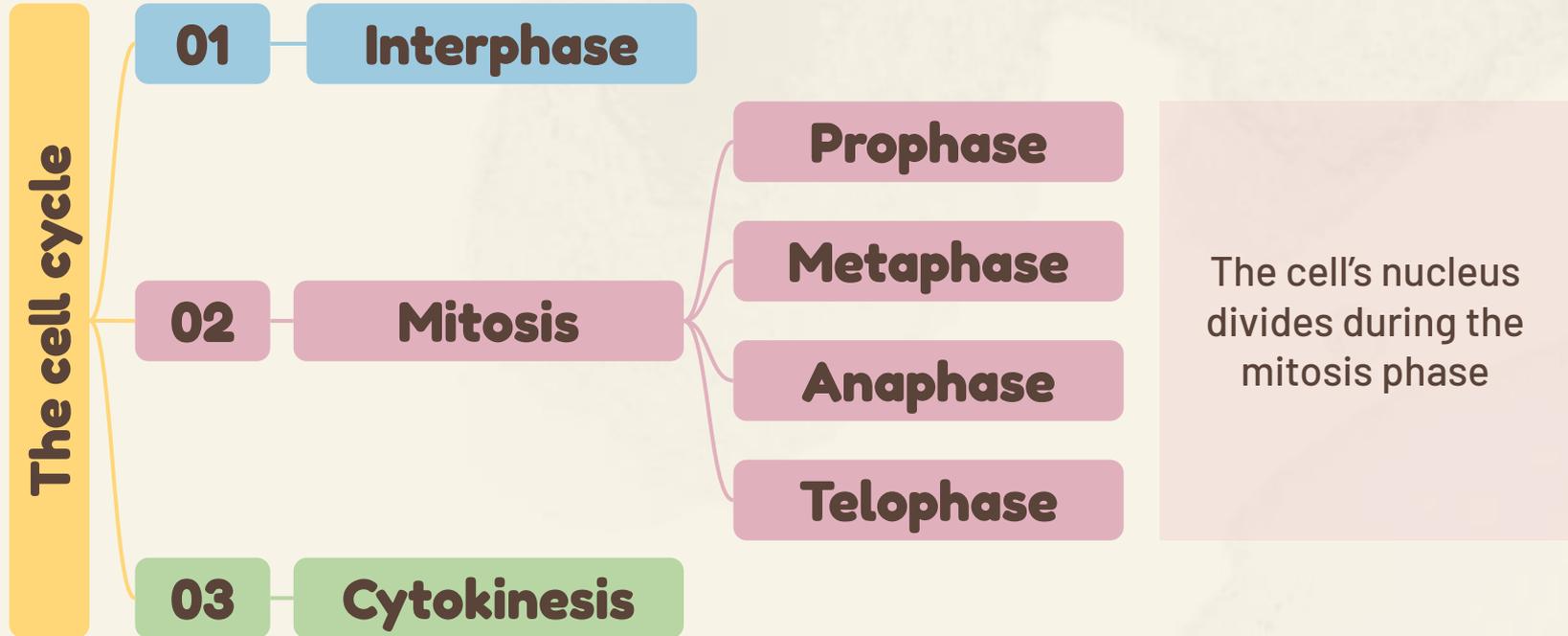
## DNA

Despite being red, Mars is a cold place

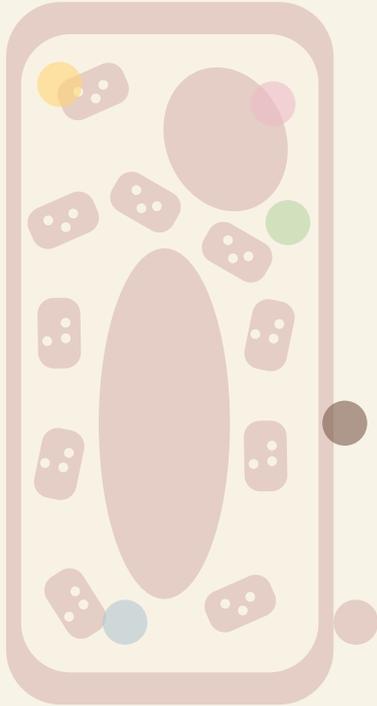
# STEM infographics



# STEM infographics



# STEM content



● **Text**

● **Videos**

Neptune is very far from the Sun

● **Cytoplasm**

Despite being red, Mars is a cold place

● **Vacuole**

Pluto is considered a dwarf planet

● **Chloroplast**

Venus is the second planet from the Sun

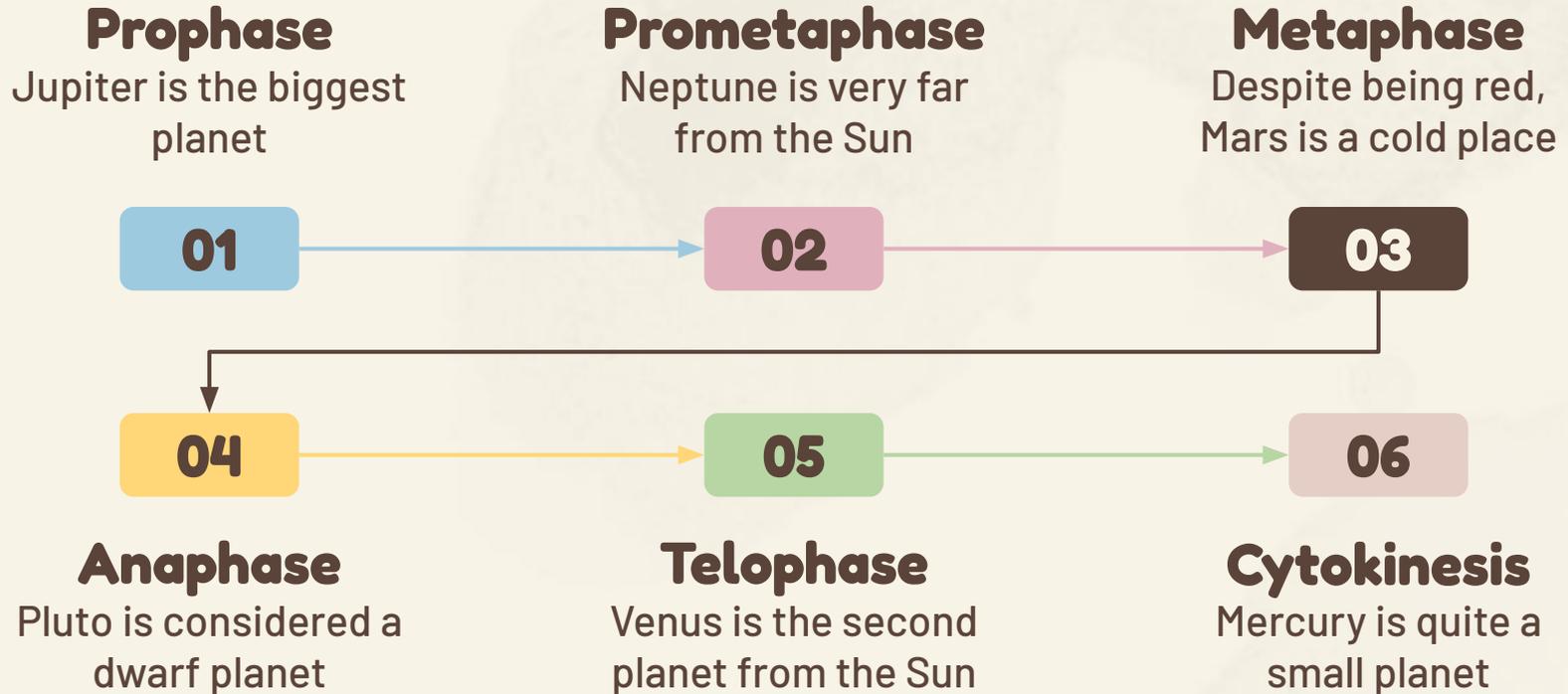
● **Cell wall**

Mercury is quite a small planet

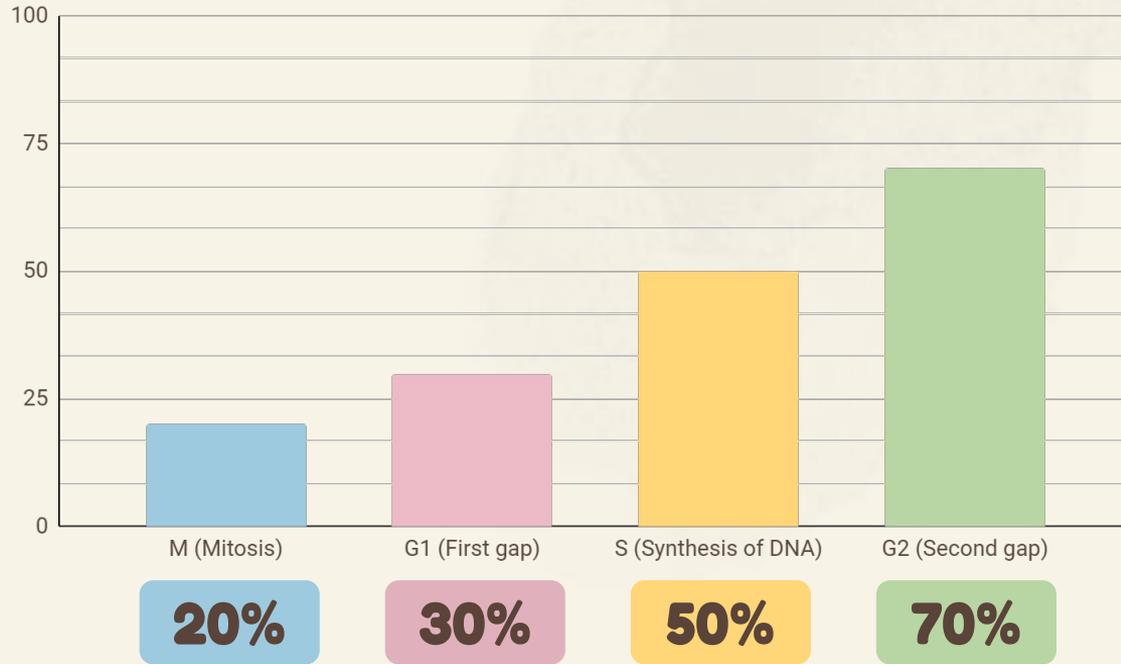
# STEM infographics

	Prophase	Metaphase	Anaphase
 <b>Somatic</b>	Venus has a beautiful name	Mercury is the smallest planet	Earth is where we all live on
 <b>Stem</b>	Saturn is a gas giant with rings	Jupiter is the biggest planet	Neptune is very far from the Sun
 <b>Embryonic</b>	Ceres is located in the asteroid belt	Pluto is now a dwarf planet	Despite being red, Mars is cold

# STEM infographics

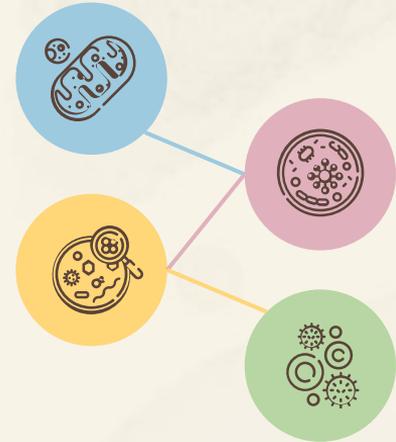


# STEM infographics



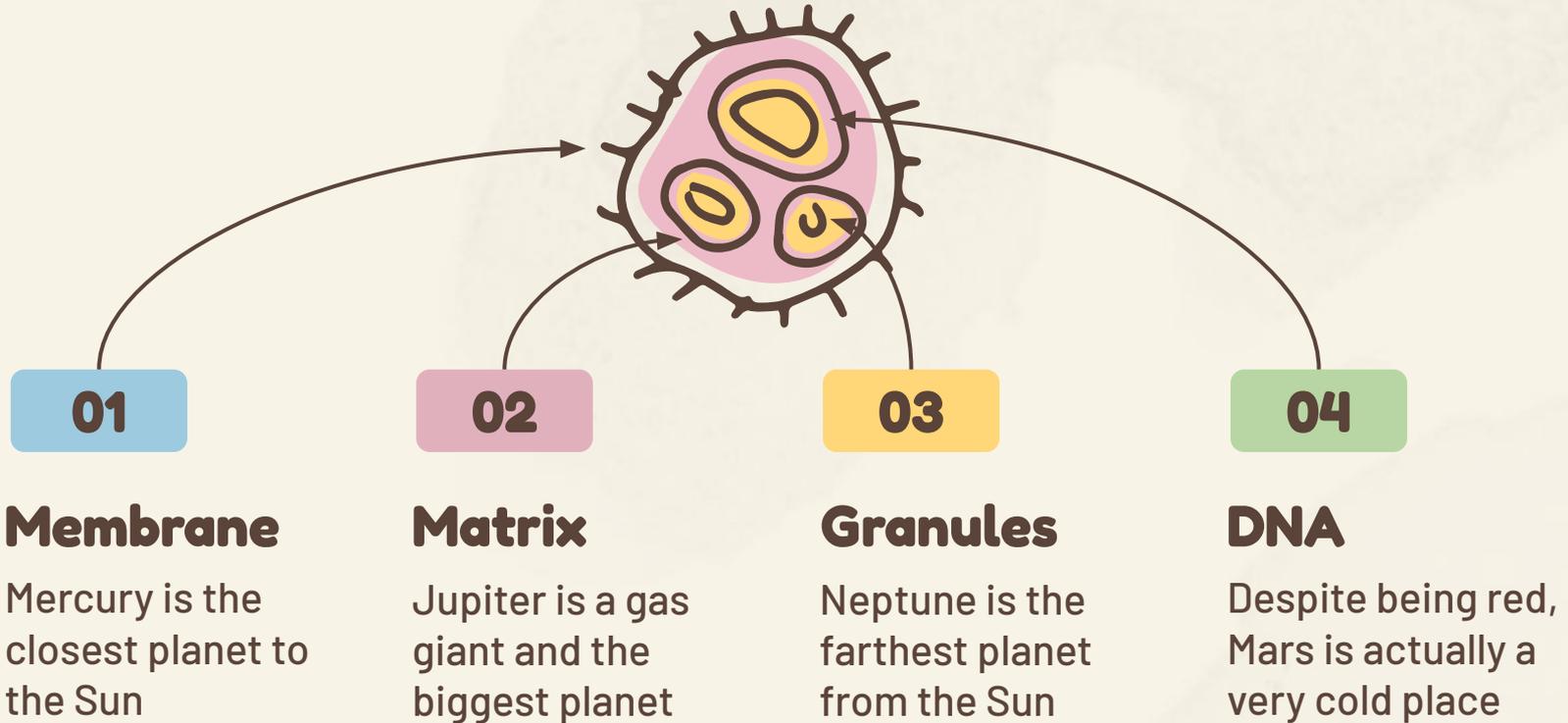
Follow the link in the graph to modify its data and then paste the new one here. [For more info, click here](#)

## Cell life cycle

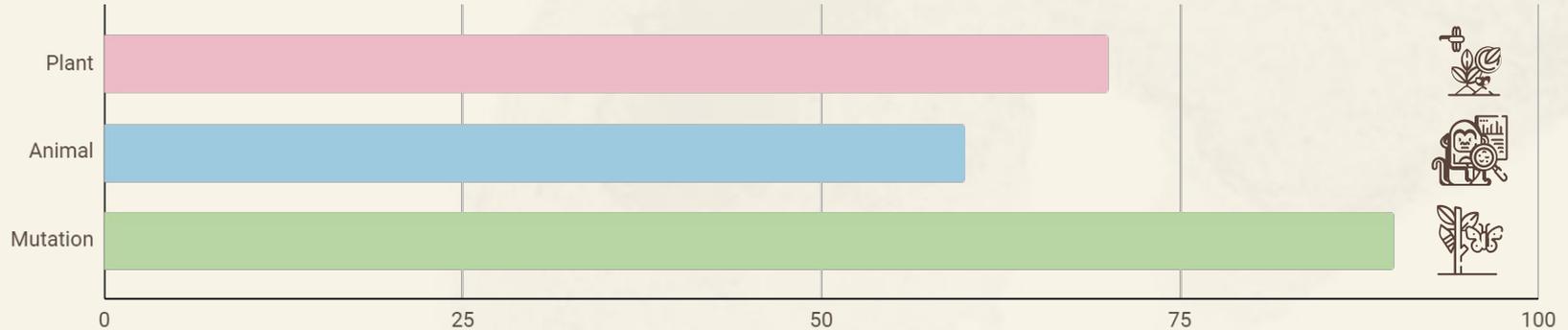


Jupiter is a gas giant and the biggest planet

# STEM infographics



# STEM infographics



**70%**

## Plant cells

Mercury is the closest planet to the Sun

**60%**

## Animal cells

Jupiter is the biggest planet in the Solar System

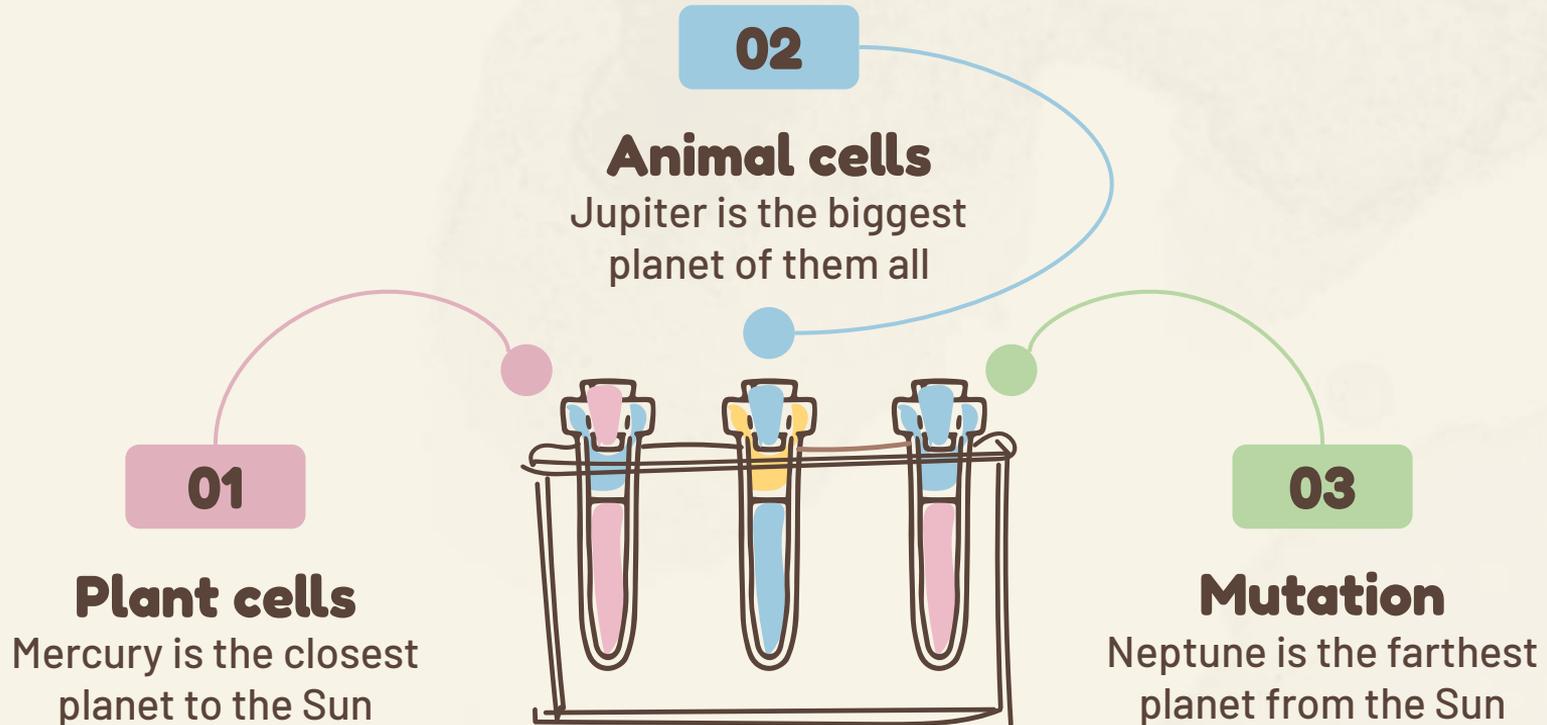
**90%**

## Mutation

Neptune is the farthest planet from the Sun

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

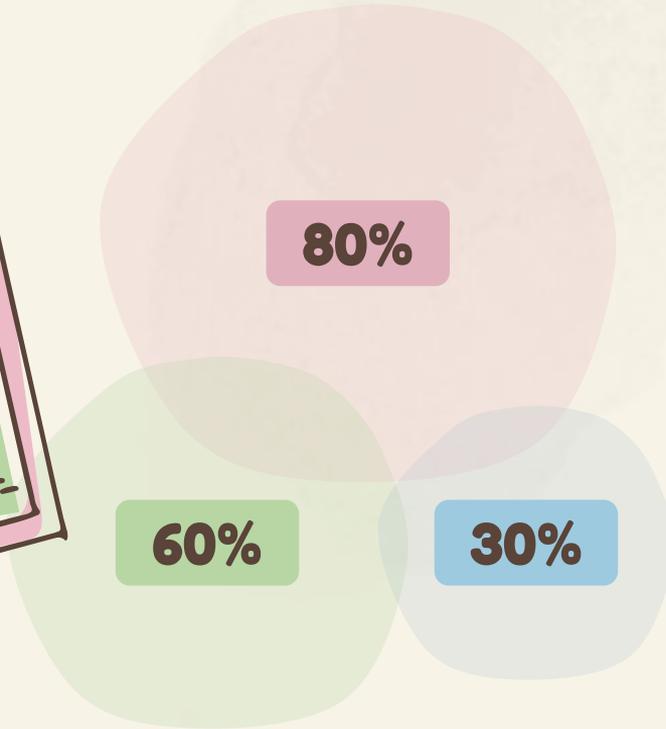
# STEM infographics



# STEM infographics



# STEM infographics



- **Nucleus**  
Jupiter is the biggest planet
- **Mitochondria**  
Neptune is very far away from us
- **Cytoplasm**  
Despite being red, Mars is a cold place

# Infographics

You can add and edit some **infographics** to your presentation to present your data in a visual way.

- Choose your favourite infographic and insert it in your presentation using Ctrl C + Ctrl V or Cmd C + Cmd V in Mac.
- Select one of the parts and **ungroup** it by right-clicking and choosing “Ungroup”.
- **Change the color** by clicking on the paint bucket.
- Then **resize** the element by clicking and dragging one of the square-shaped points of its bounding box (the cursor should look like a double-headed arrow). Remember to hold Shift while dragging to keep the proportions.
- **Group** the elements again by selecting them, right-clicking and choosing “Group”.
- Repeat the steps above with the other parts and when you’re done editing, copy the end result and paste it into your presentation.
- Remember to choose the “**Keep source formatting**” option so that it keeps the design. For more info, please visit **our blog**.

