Process of developing e-content
For
STEM

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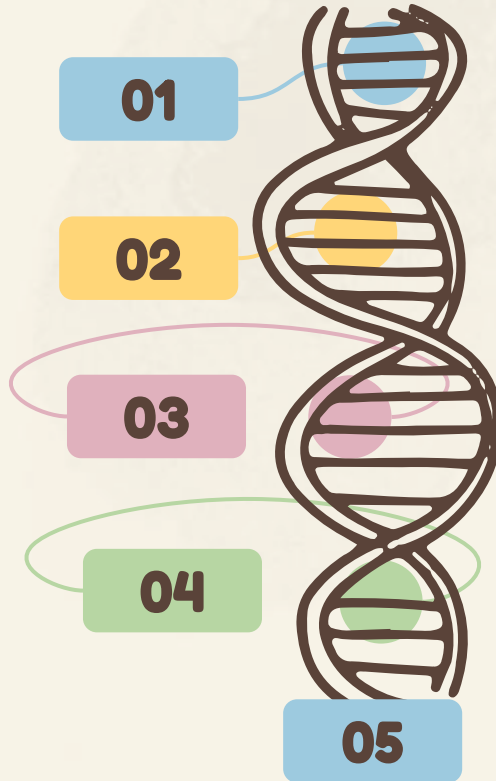
Getting into the process

Objectives & outcomes

01

02

Conceptualize

STEM

Develop & Cultivate

04

03

Document the design

Process of e-content development- Science

Dr. Ajita Deshmukh
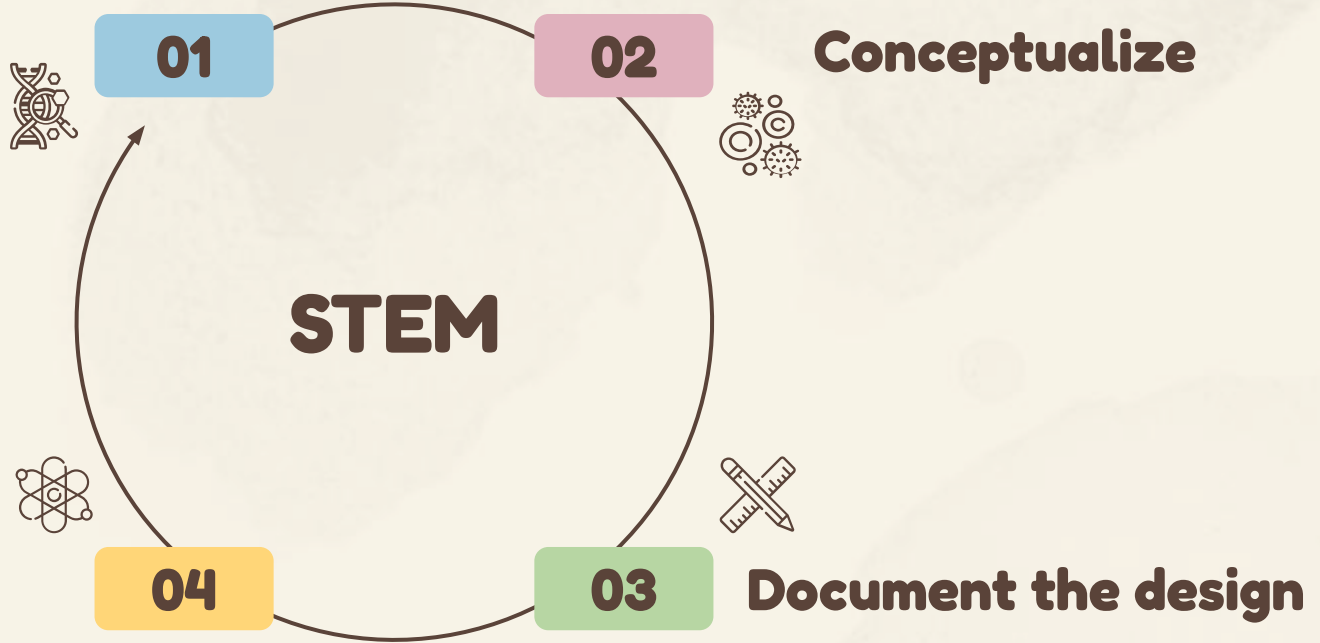
Mapping the STEM e-content

Desired Outcome

01 → **02** → **03**

Data collection

What type of response do you want for the content?

Feasibility

Device availability

Content Type

Select an appropriate type

E-content in STEM

Experiential

Theory + Practical

- *Text*
- *Images/Infographics*
- *Videos*
- *Animation*
- *Simulation*
- *AR/VR*

Hands- on Heart on

- Interactives
- Manipulatives
- Comic Strips
- Podcasts

What do students want?

Learning of STEM

01   **Adaptive**
- Personalise
- Mobile Learning

02   **Gamified**
- Interactive
- Immersive

03   **Microlearning**
- Chunked content
- Clear outcomes

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

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

Mapping STEM content- examples

Science Practical application

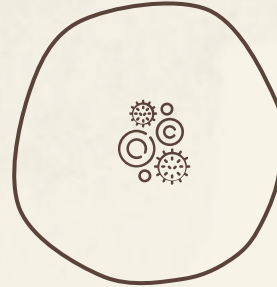| Desired Outcome	Data collection	Type of e-content
Practical skill		Demonstration + practical at home
Application	Physical or virtual	Project
Create		Toy making/ Stop motion video

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
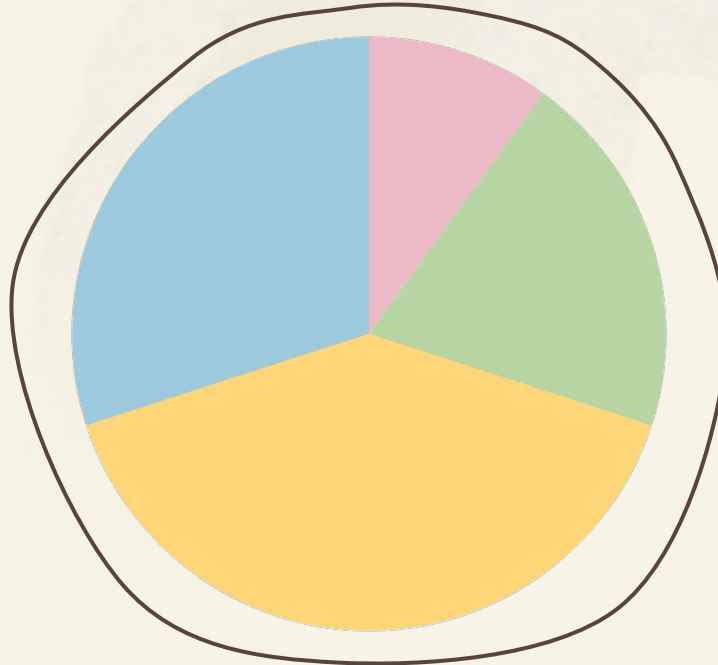
Popular STEM content formats

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

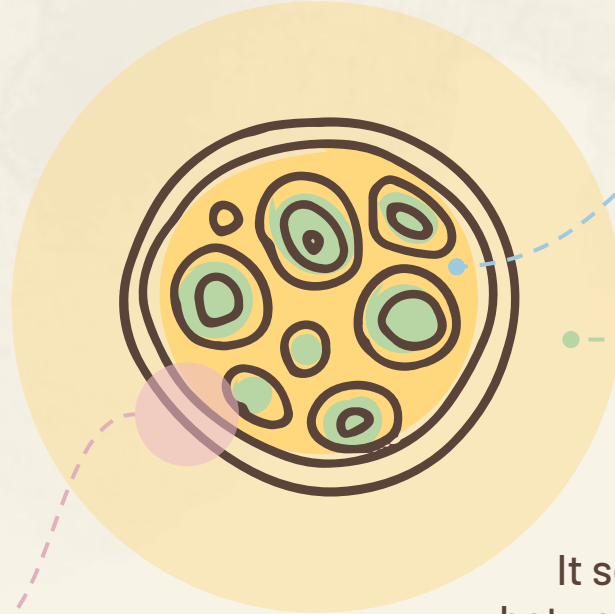**20%**

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

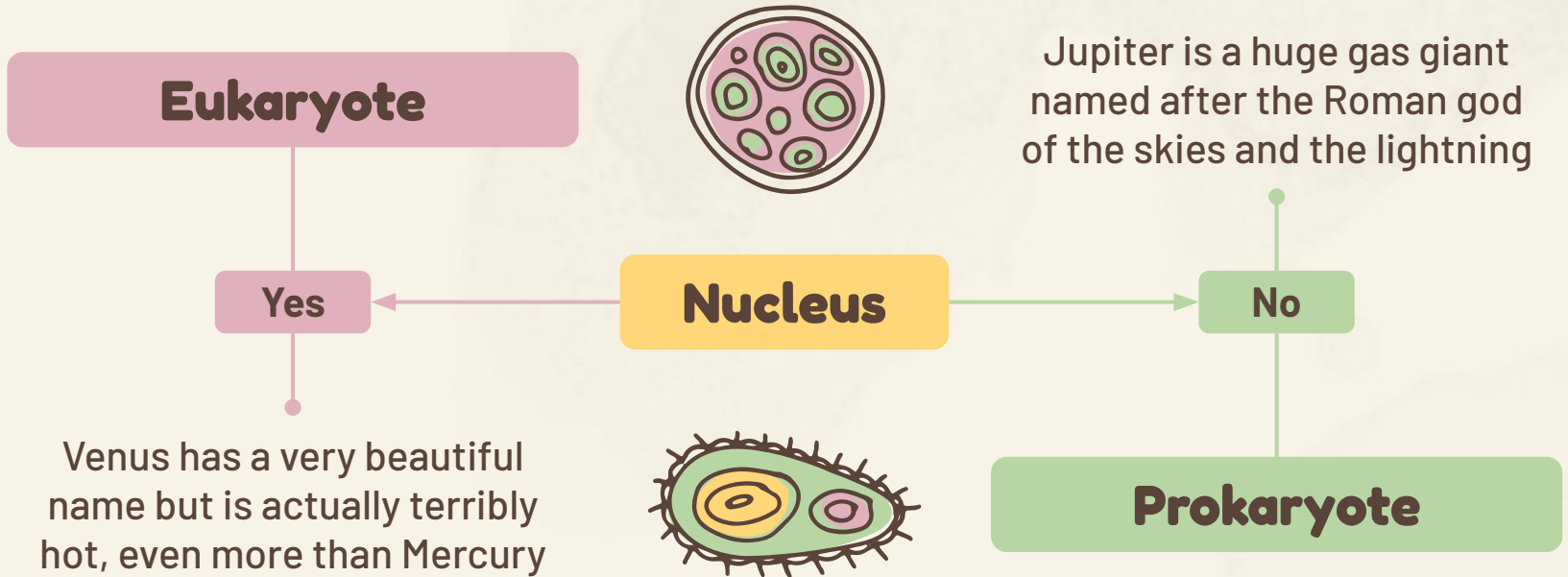All cells are surrounded by a structure called

The cell membrane

Internal

External

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

STEM infographics

Eukaryote

Jupiter is a huge gas giant named after the Roman god of the skies and the lightning

Yes

Nucleus

No

Venus has a very beautiful name but is actually terribly hot, even more than Mercury

Prokaryote

STEM infographics

01

Mitosis

- 4 stages
- Somatic cells
- Cellular proliferation
- 2 diploid cells
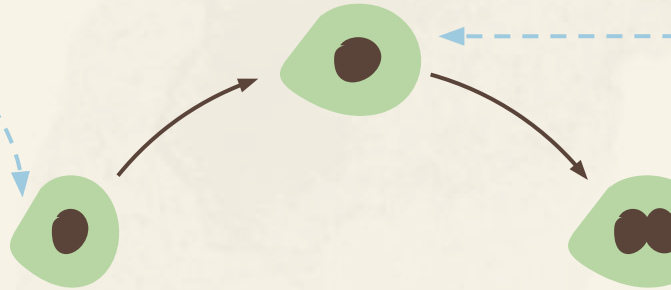
- New cells
- Similar basic steps
- Single parent cell

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

Cytokinesis
Mercury is quite a small planet

Metaphase
Despite being red, Mars is a cold place

Mitosis

Telophase
Venus is the second planet from the Sun

Anaphase
Pluto is considered a dwarf planet

CIET, Jan 23, 2024   Process of e-content development- Science   Dr. Ajita Deshmukh

STEM infographics

Mitochondria

01

Matrix

Jupiter is a gas giant and the biggest planet

02

Granules

Neptune is the farthest planet from the Sun

03

Membrane

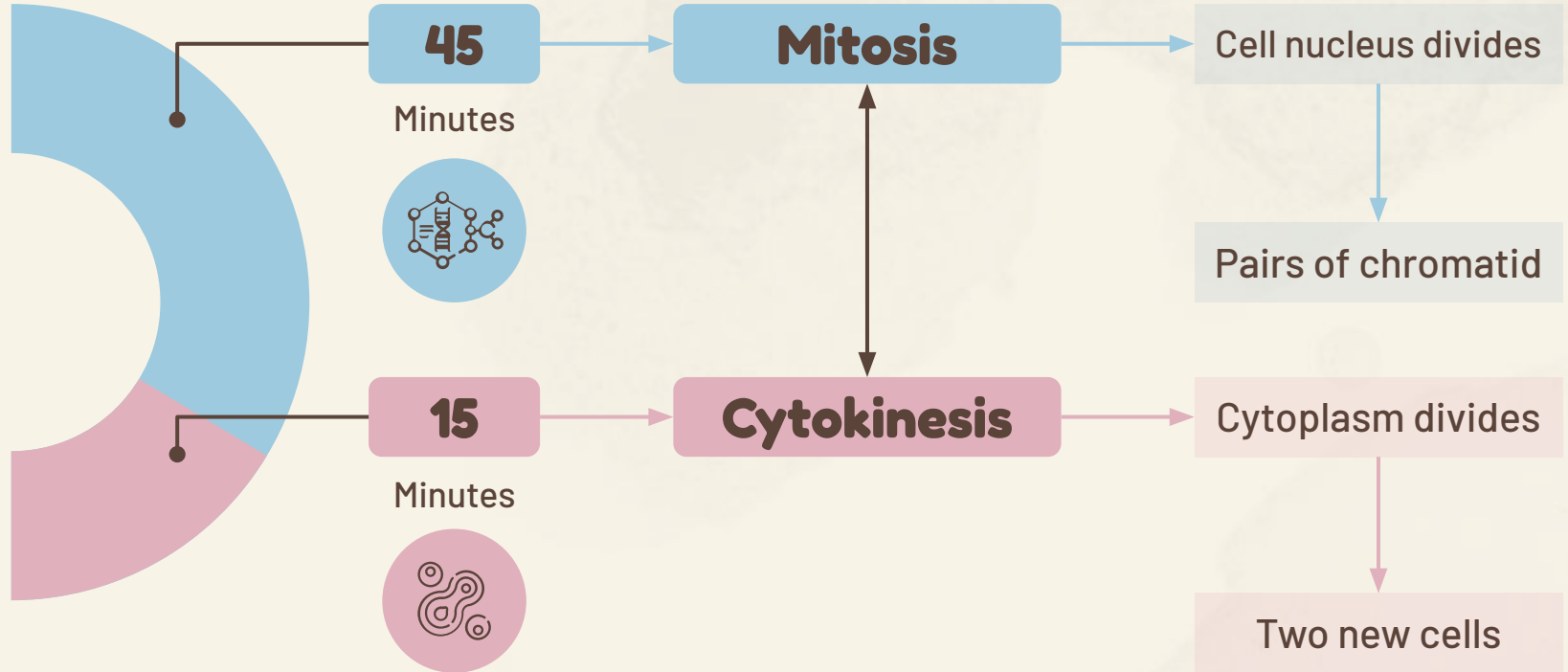Mercury is the closest planet to the Sun
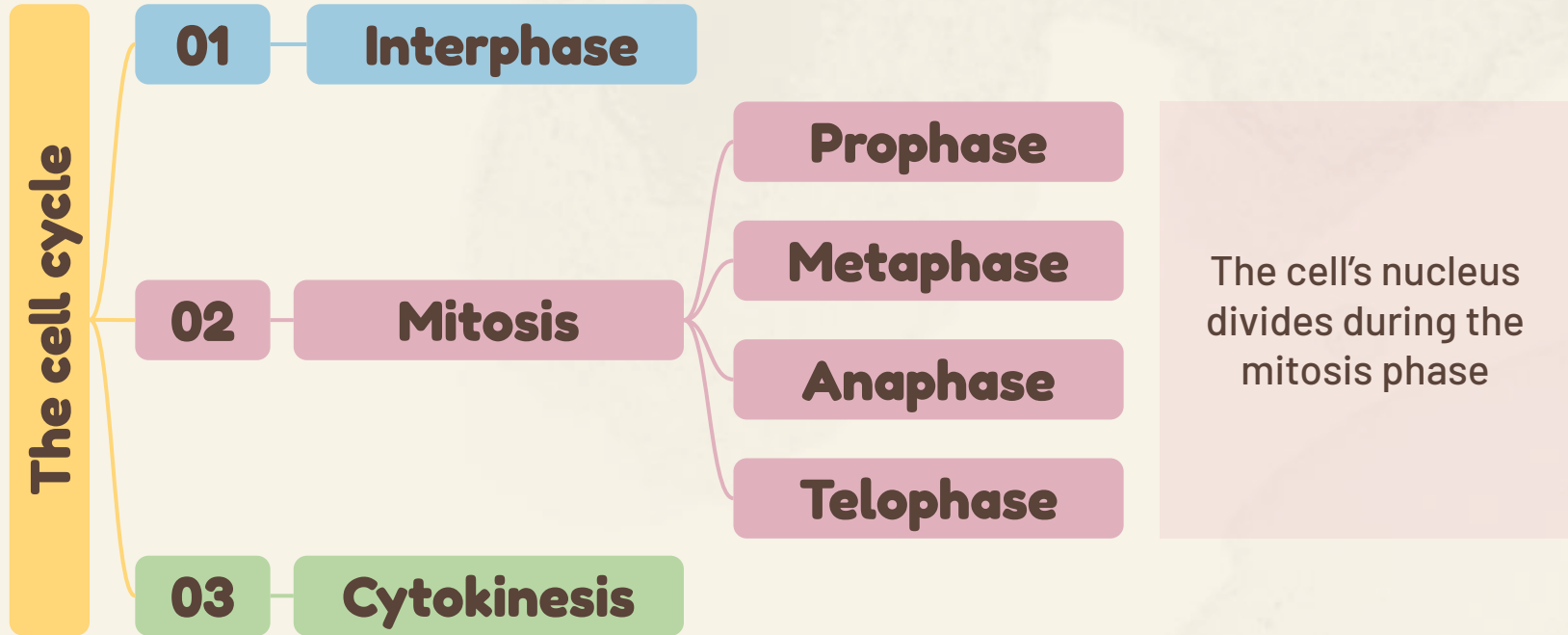
04

DNA

Despite being red, Mars is a cold place

STEM infographics

| 45 Minutes | → | **Mitosis** | → | Cell nucleus divides |

Pairs of chromatid

| 15 Minutes | → | **Cytokinesis** | → | Cytoplasm divides |

Two new cells

STEM infographics

The cell cycle

- **01** — **Interphase**
- **02** — **Mitosis**
  - **Prophase**
  - **Metaphase**
  - **Anaphase**
  - **Telophase**
- **03** — **Cytokinesis**

The cell's nucleus divides during the mitosis phase
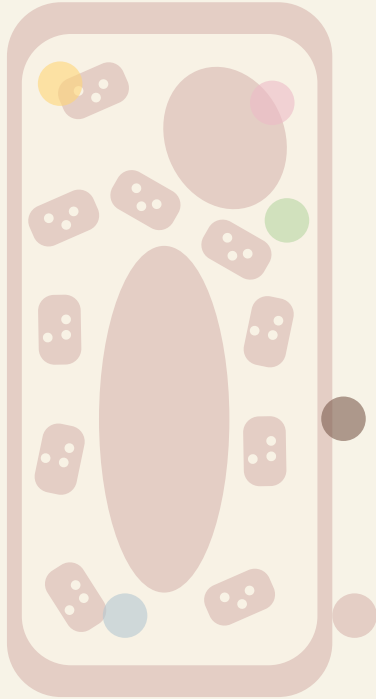
STEM content

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

STEM infographics

Prophase
Jupiter is the biggest plant

Prometaphase
Neptune is very far from the Sun

Metaphase
Despite being red, Mars is a cold place

01 → 02 → 03

04 → 05 → 06

Anaphase
Pluto is considered a dwarf planet
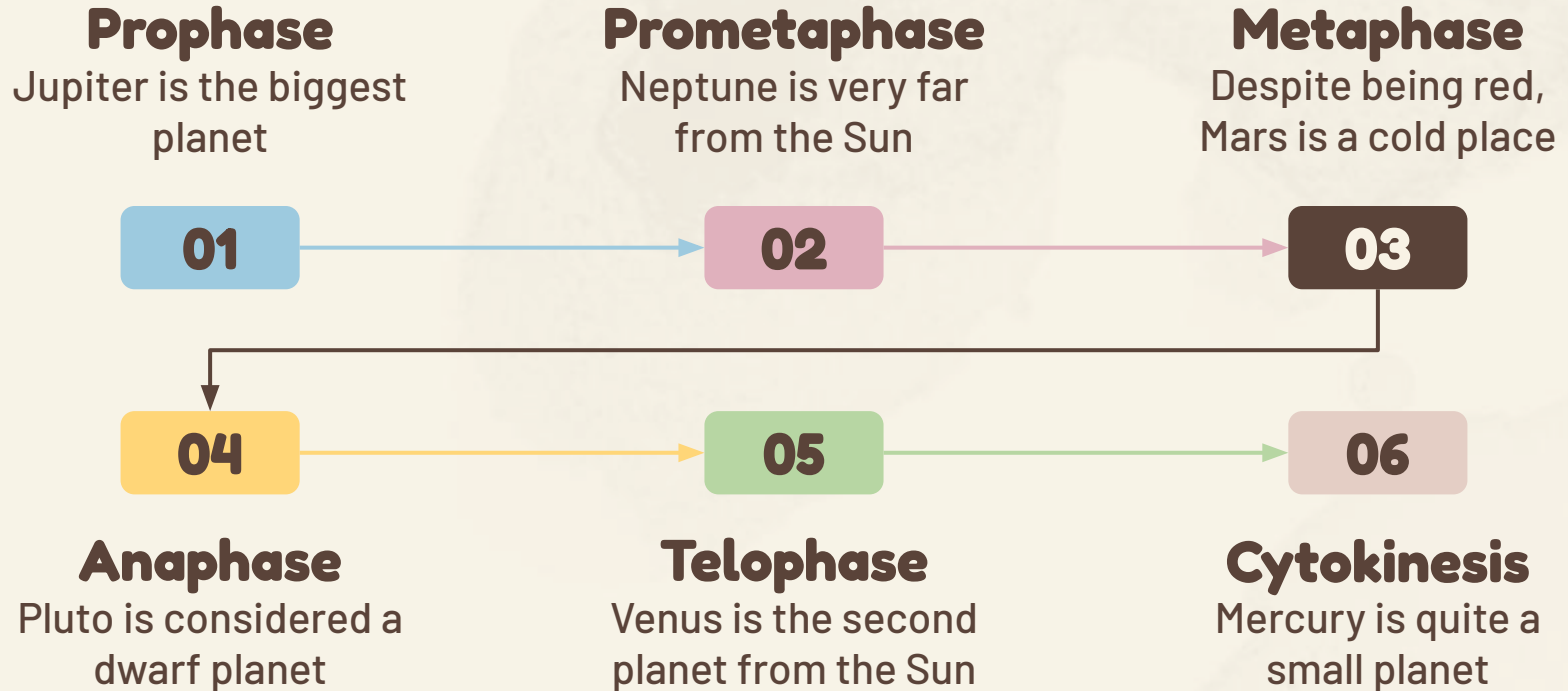
Telophase
Venus is the second planet from the Sun

Cytokinesis
Mercury is quite a small planet

STEM infographics

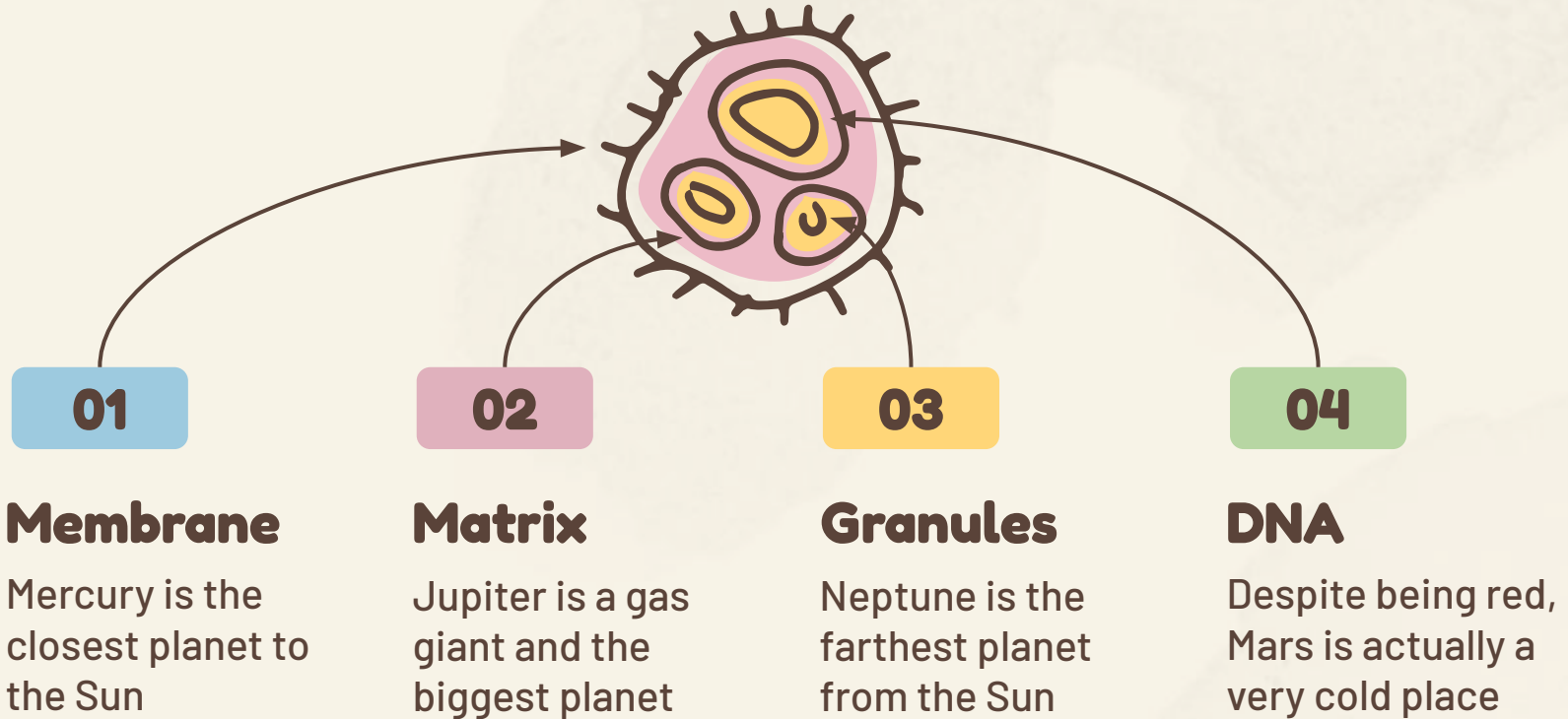| M (Mitosis)	G1 (First gap)	S (Synthesis of DNA)	G2 (Second gap)
20%	**30%**	**50%**	**70%**
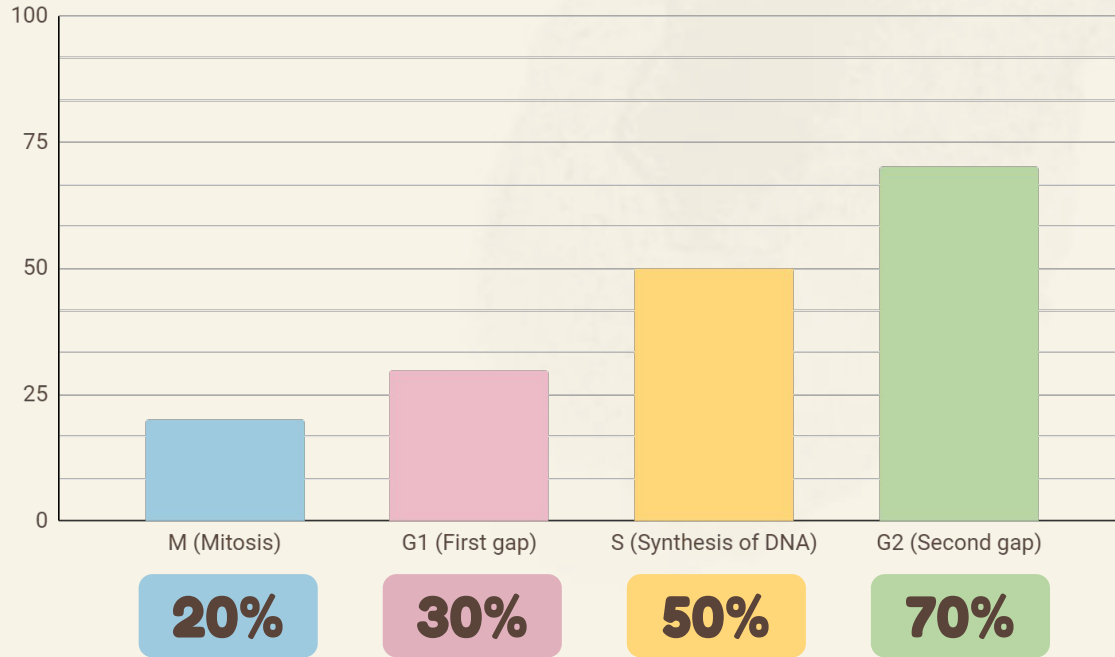
Cell life cycle

Jupiter is a gas giant and the biggest planet

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

STEM infographics

01

Membrane

Mercury is the closest planet to the Sun

02

Matrix

Jupiter is a gas giant and the biggest planet

03

Granules

Neptune is the farthest planet from the Sun

04

DNA

Despite being red, Mars is actually a very cold place

STEM infographics
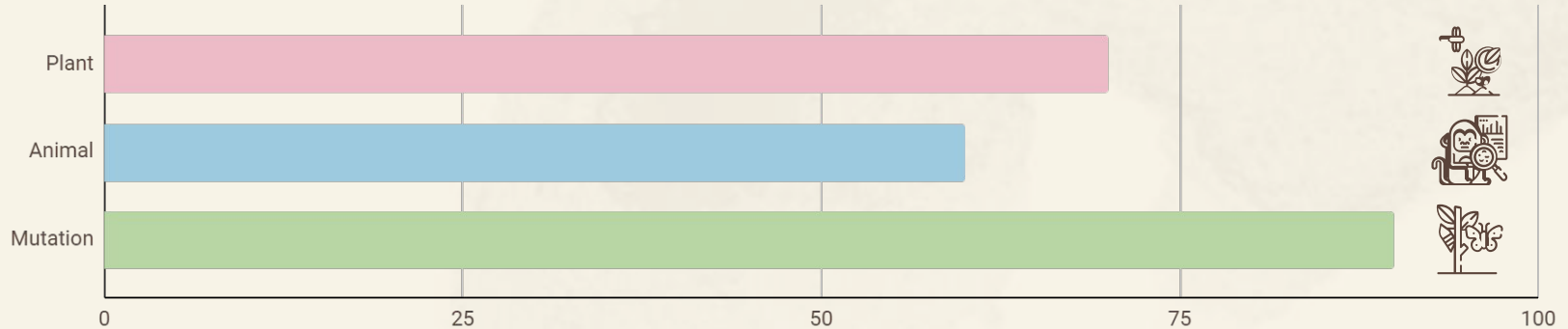
70%

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**
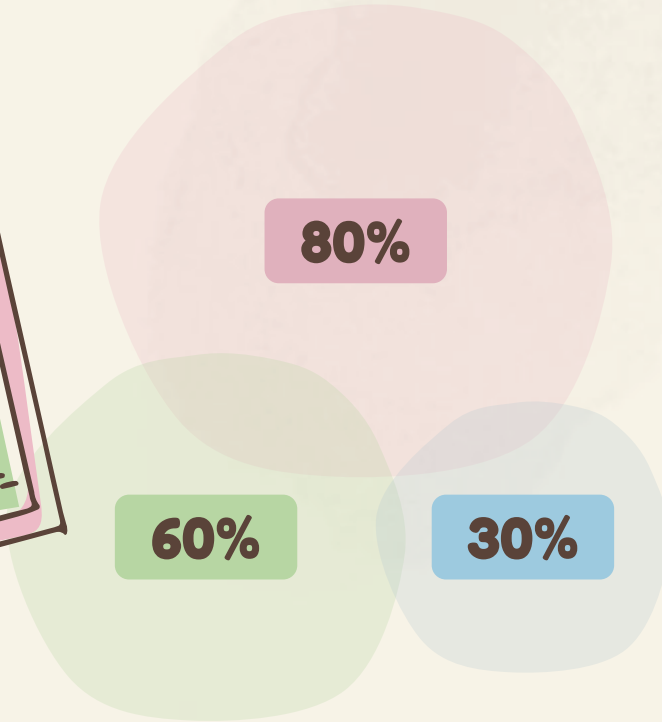
STEM infographics

02

Animal cells
Jupiter is the biggest
planet of them all

01

Plant cells
Mercury is the closest
planet to the Sun

03

Mutation
Neptune is the farthest
planet from the Sun

STEM infographics

8 stages

Jupiter is the biggest planet of them all

Germ cells

Saturn is composed of hydrogen and helium

Meiosis

Mercury is the closest planet to the Sun

Reproduction

Neptune is the farthest planet from the Sun

4 haploid cells

Despite being red, Mars is a very cold planet

STEM infographics

80%

60%   **30%**
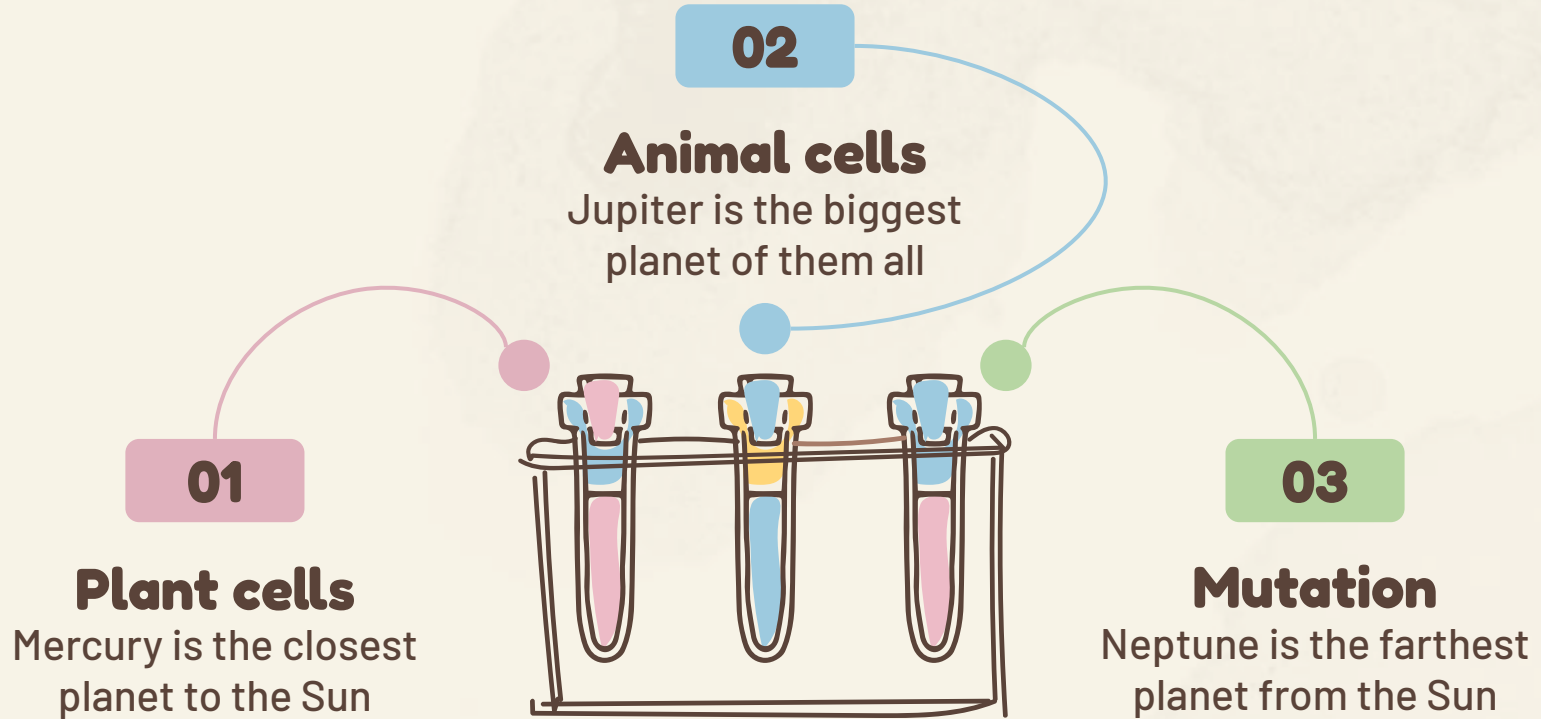
● **Nucleus**
Jupiter is the biggest planet

● **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**.