TECHNOLOGICAL UNIVERSITY DUBLIN

TRY FIVE+

workday.

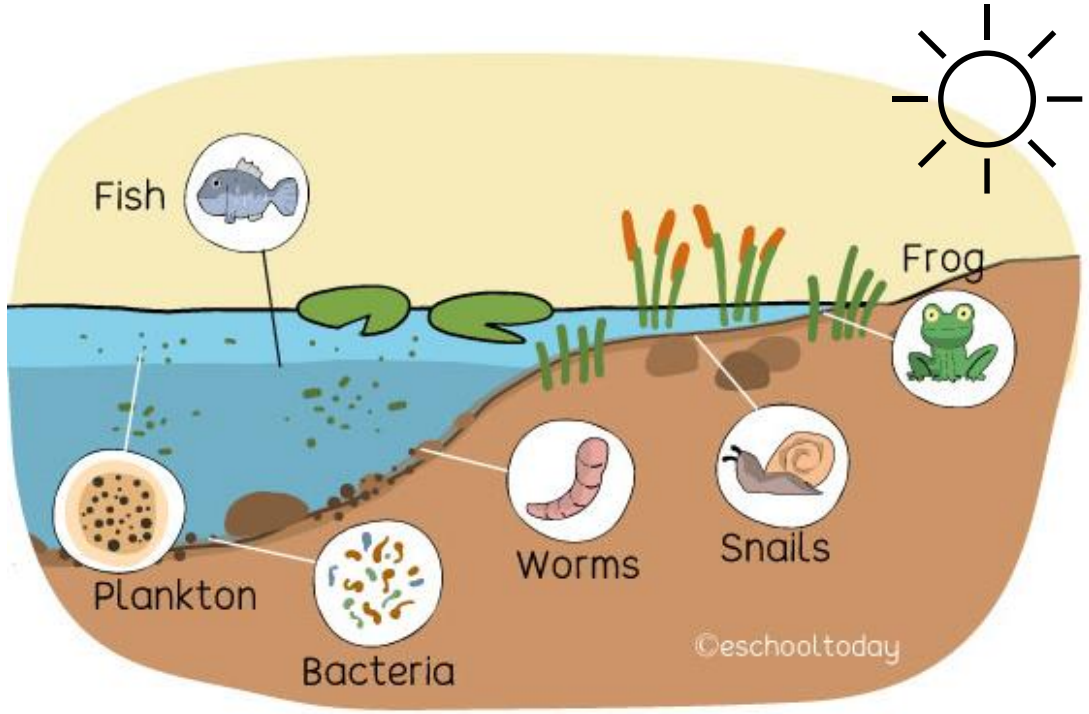
An Roinn Oideachais
Department of Education

Taighde Éireann
Research Ireland

MISSION 2

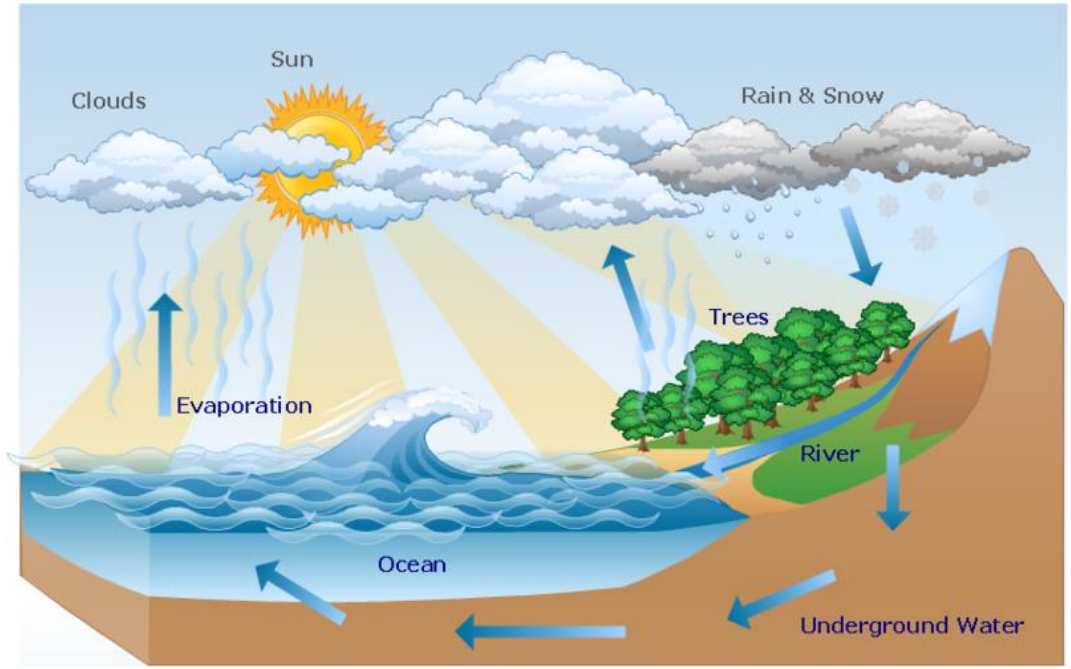
THE SCIENCE OF ECOSYSTEMS!

WHAT IS AN ECOSYSTEM?



- A geographic area where
  - plants,
  - animals, and
  - other organisms,
  - as well as weather and landscape,

WORK TOGETHER TO FORM A BUBBLE OF LIFE

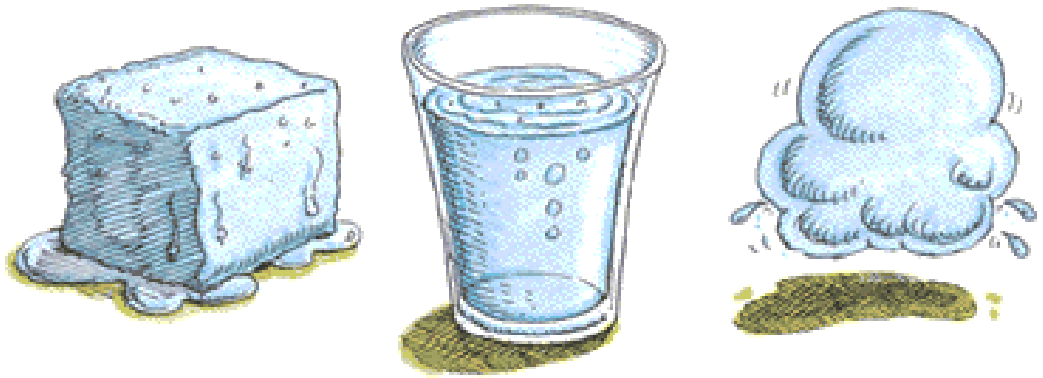


Water Cycle diagram by K.Tapdıqova

States of Water

- **Solid**: Ice is frozen water. Water freezes at 0° Celsius.
- **Liquid**: It's wet and can move easily. We use liquid water for things like drinking and washing.
- **Gas/Water Vapor**: It is always in the air, but we can't see it. When you heat up water, it changes from liquid to gas, or vapor. When the vapor cools down, we can see it as steam, which looks like a tiny cloud. Steam forms at 100° Celsius.

What three forms can water take?



https://www.summitwater.org/story_of_water/html/3forms.htm

@Yvetty Yao, 2023

@Zhuoqun Zhang, 2024

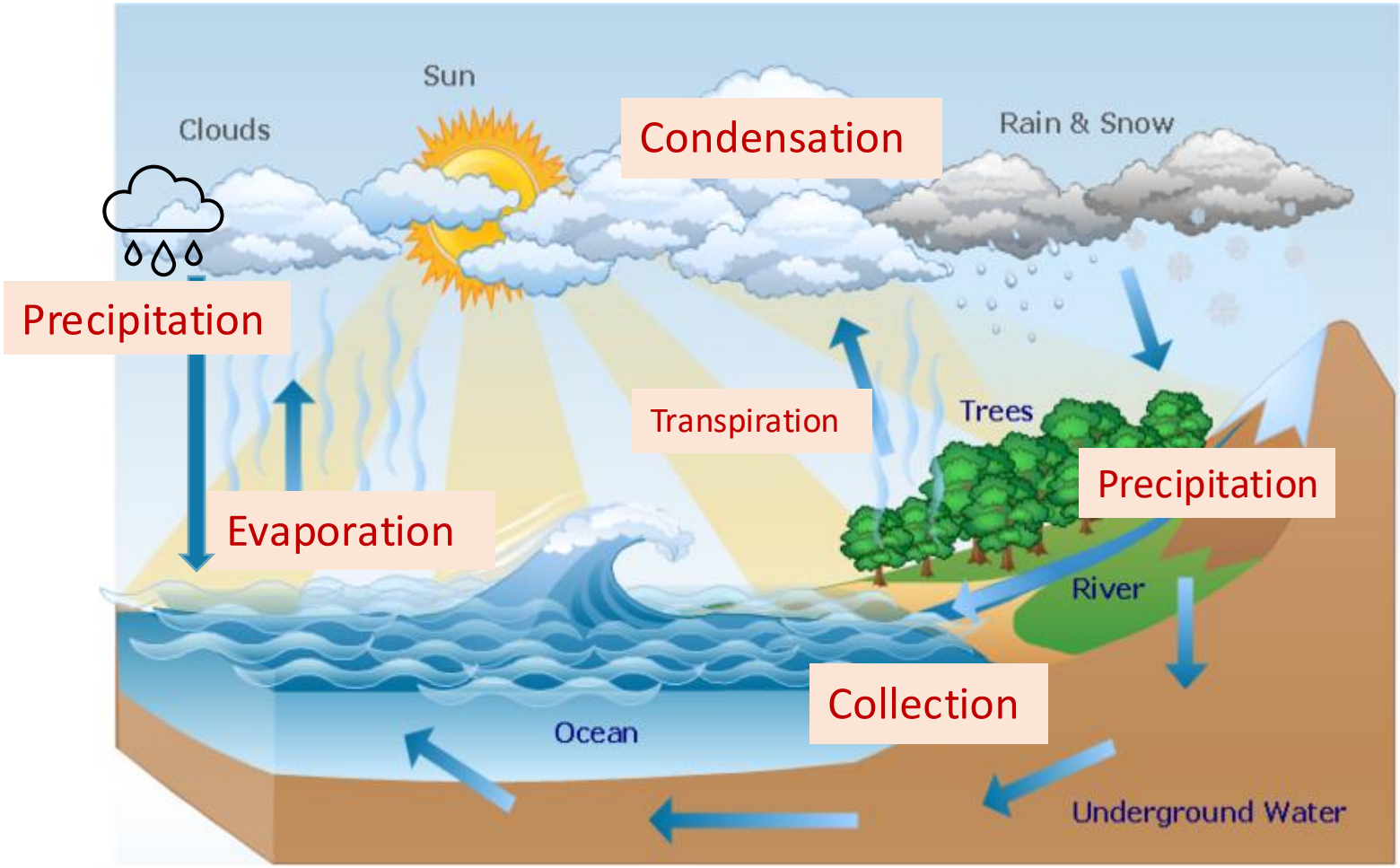
https://watercycleweather.weebly.com/evaporation.html

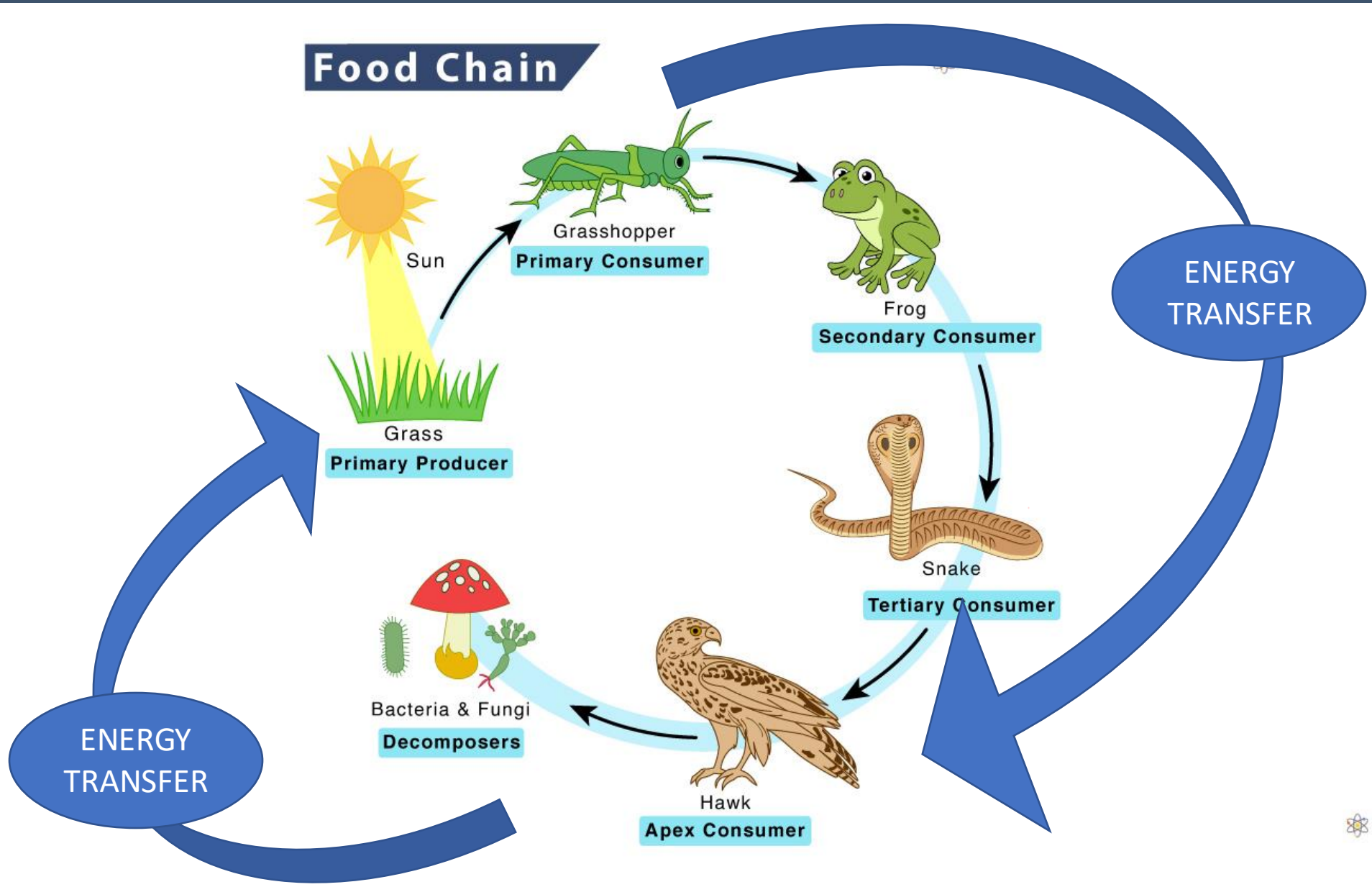
Quick Q&A

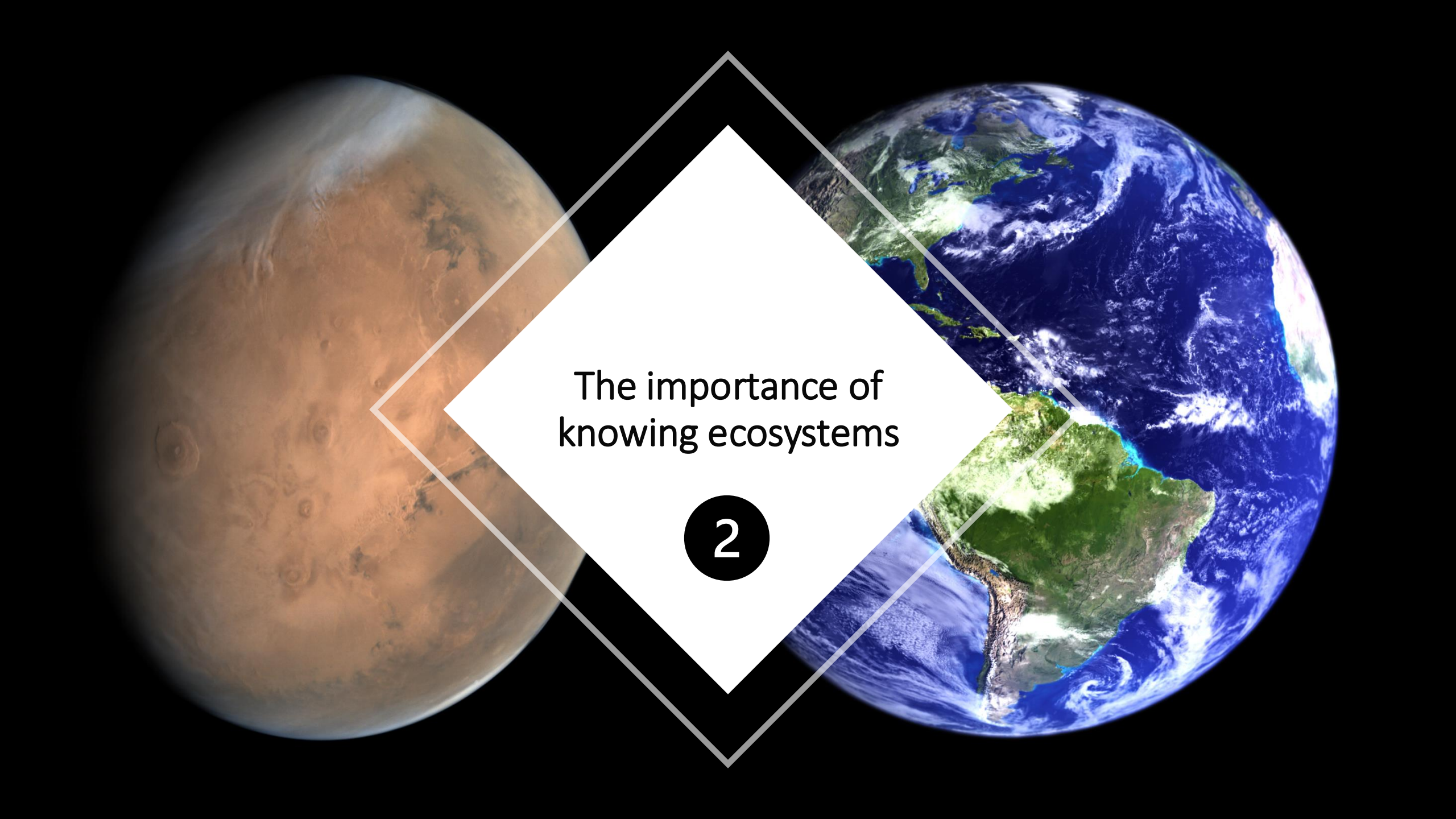
- What happened to the water?

Water Cycle

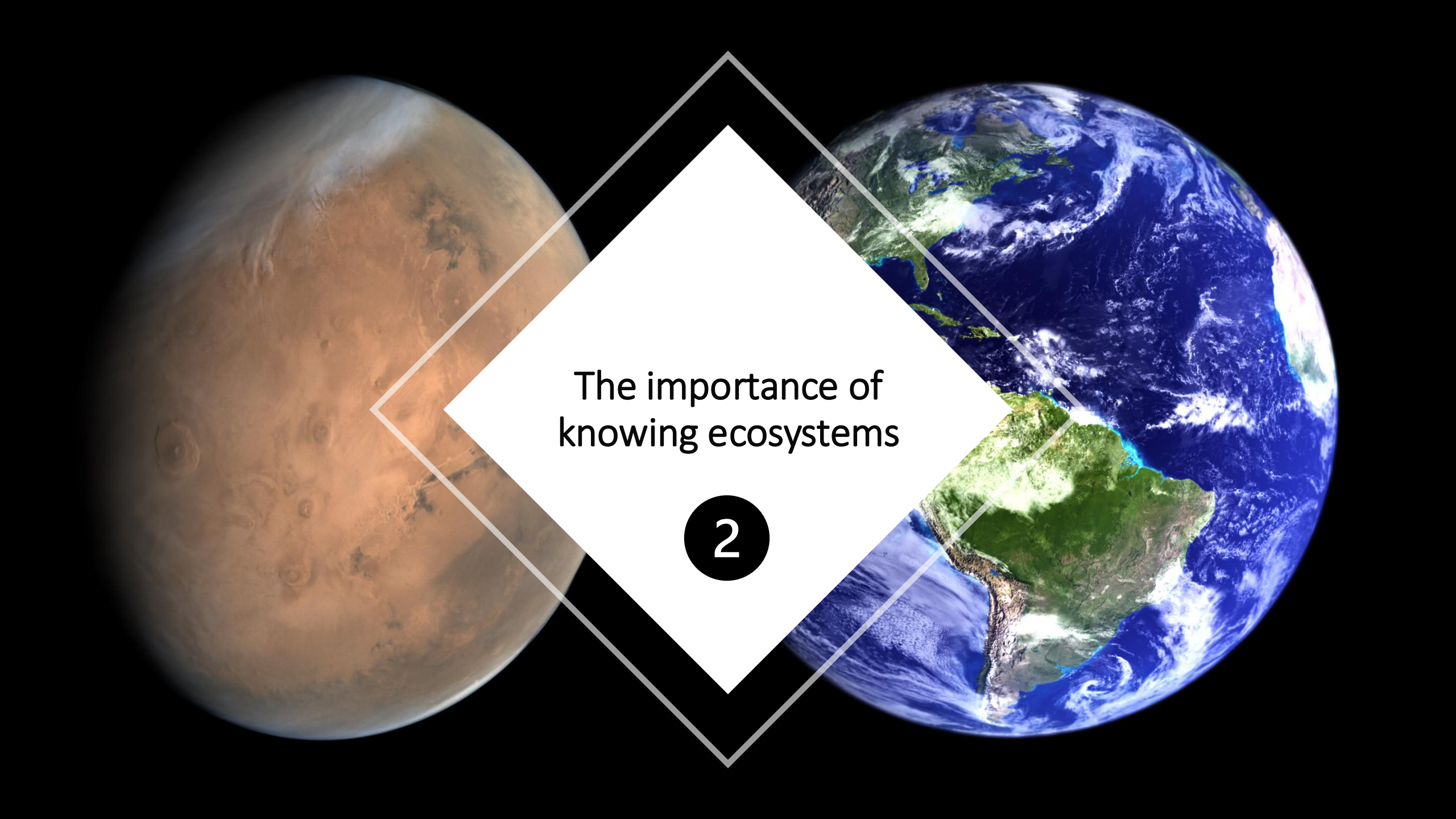
- 1 big cycle & 2 small cycles
- Anything goes wrong with this picture?




Food Chain
Sun
Grasshopper
Primary Consumer
Frog
Secondary Consumer
Snake
Tertiary Consumer
Hawk
Apex Consumer
Bacteria & Fungi
Decomposers
Grass
Primary Producer
ENERGY TRANSFER
ENERGY TRANSFER
ScienceFacts.net


The importance of knowing ecosystems
2

Wolves can change the river


The importance of knowing ecosystems
2

BIOSPHERE 2

ARIZONA, 2017

- ❑ Could they grow their own food?
- ❑ Could they recycle air and water?
- ❑ Could they live without getting food and supplies from the outside world?

BIOSPHERE 2

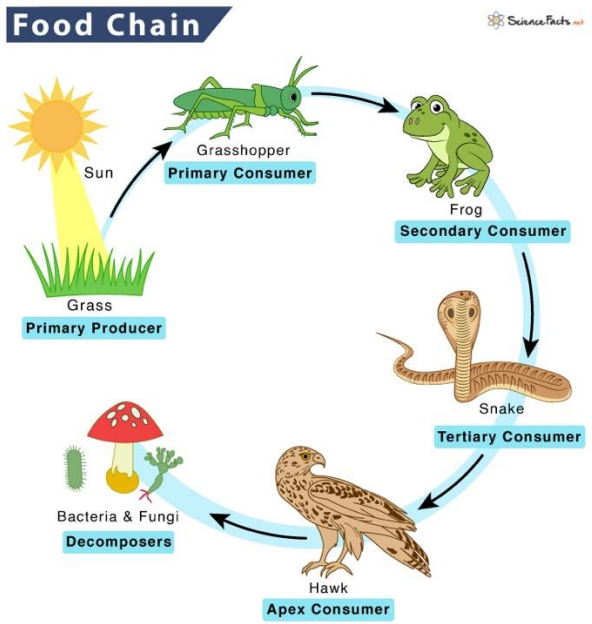
ARIZONA, 2017

- Ocean
- Mangrove wetlands
- Tropical rainforest
- Savanna grassland
- Fog desert

Jane Poyneter: Boisphere 2

[About Biosphere 2 | Biosphere 2]

CAN WE MAKE OUR OWN ECOSYSTEM?



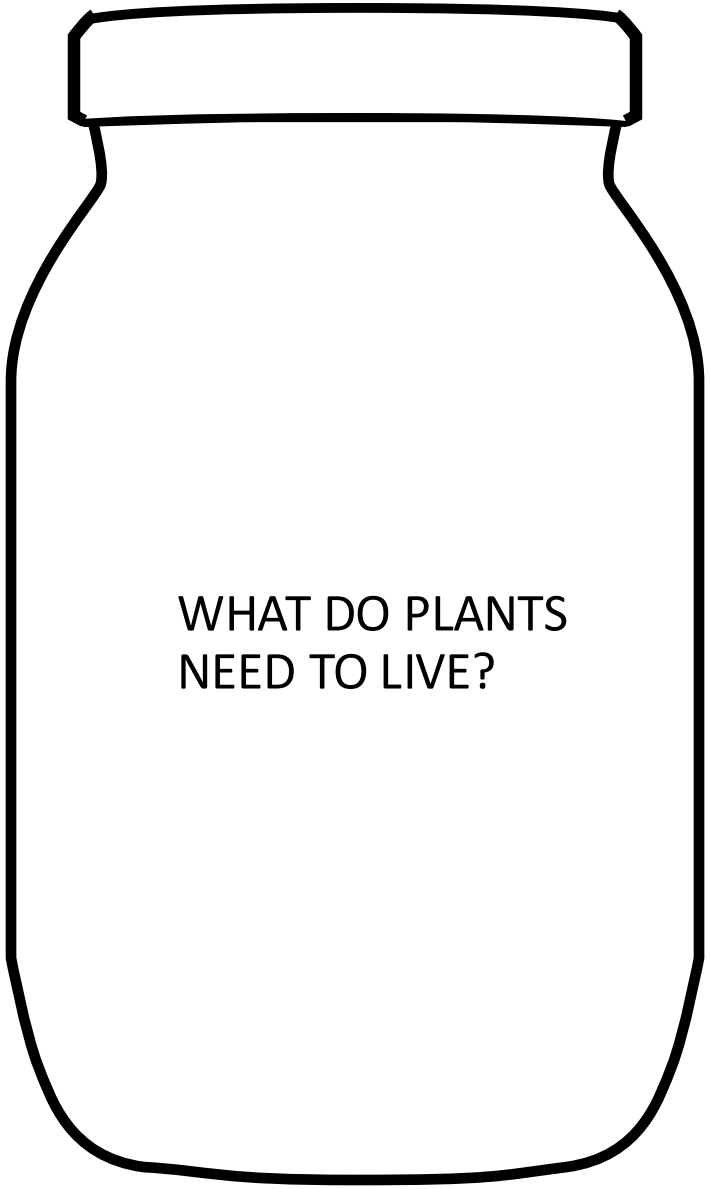
EQUILIBRIUM

David Latimer

- started in 1960
- last opened in 1972

LET'S BUILD!


GLASS JAR
MOSS
SUBSTRATE OR SOIL
DECORATATIONS
CHARCOAL
STONES
CARBON MESH


WHAT DO PLANTS
NEED TO LIVE?

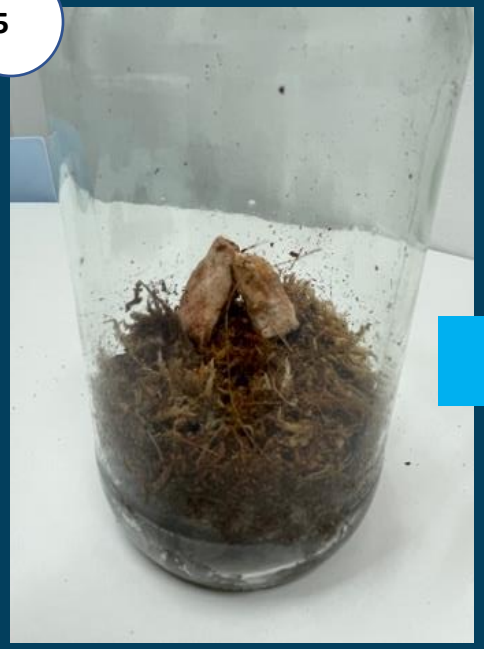
1

2

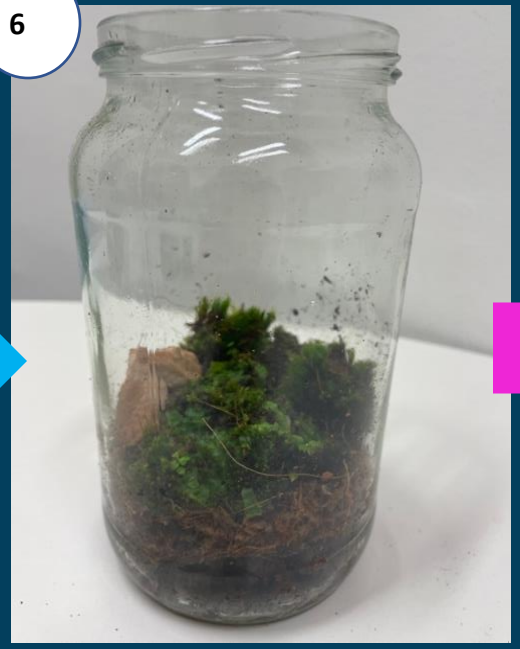
3

4

5



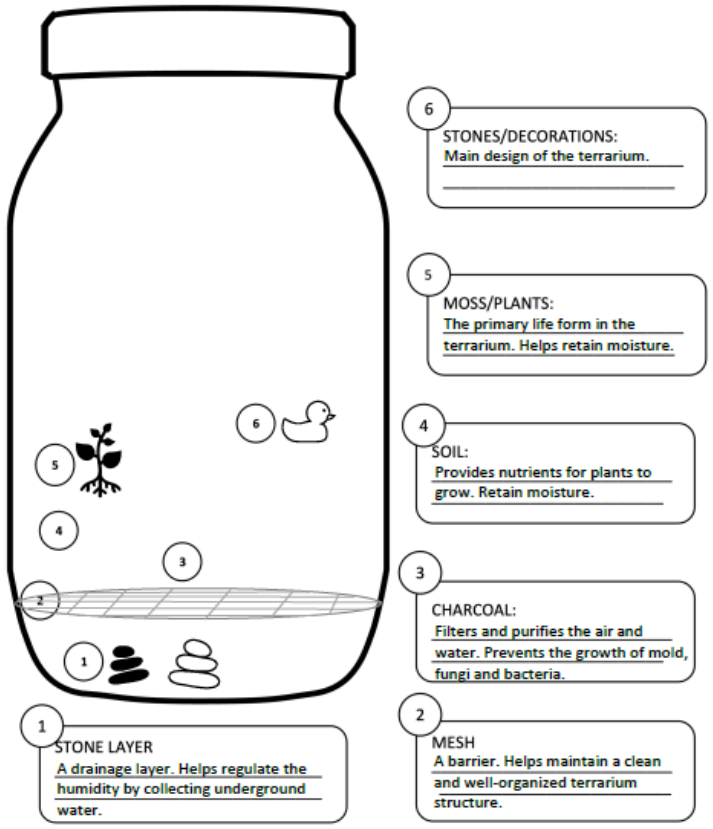
6

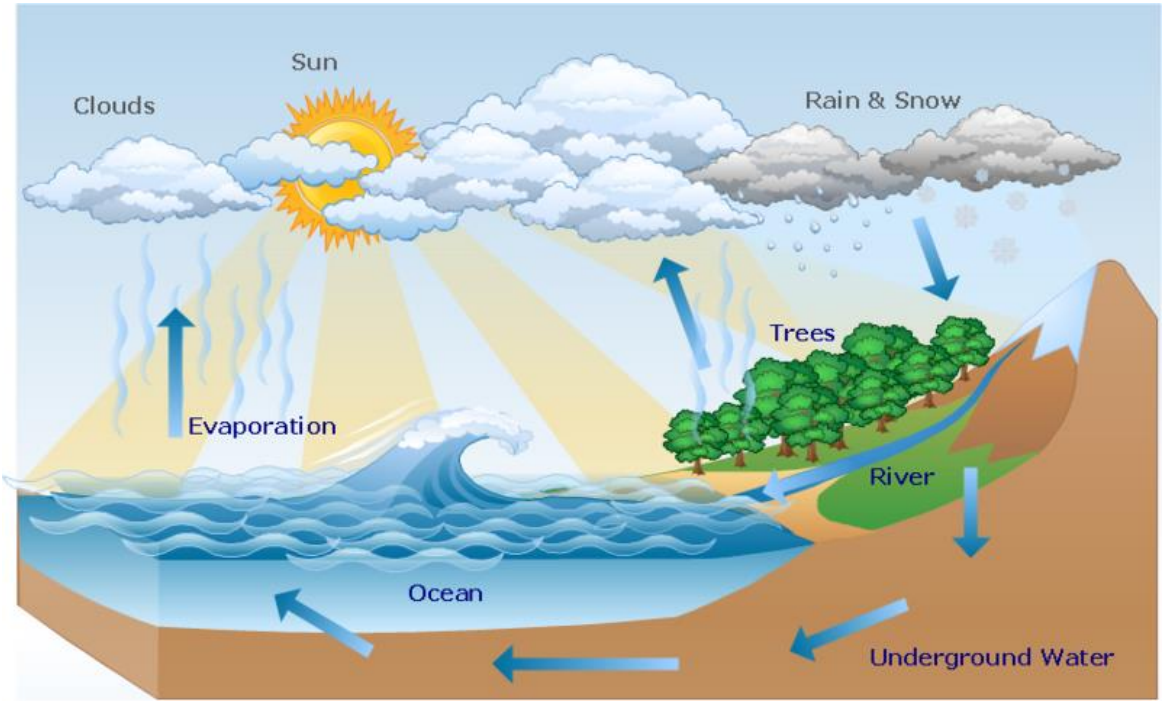


WHERE TO PUT OUR ECOSYSTEM?

DRAW & WRITE

- **Can you explain their functions?**
- **Can you draw the water cycle inside your terrarium?**





WEEK 1:

Date: Weather:

I put my terrarium at/near/under/on...

Plants:

Animals:

Water Cycle:

Interesting Findings & Thinking:

Idea sharing:

Who did you share your discovery with?
What does he/she think?

Research Diary

CONTEST!

Best research diary about the terrarium

- **Submit your research diary on workshop 3/4.**
- **Observe the ecosystem, draw a picture of it and write down your discovery every week.**
  - **Where is your terrarium located?**
  - **Is the moss growing?**
  - **Have the plants changed colour?**
  - **Can you see water condensation in the walls?**
  - **Did you see any critter?**
  - **Did you share your idea with friends/family? What was his/her idea?**
- **Prize-giving on workshop 4/5.**

OBSERVATIONAL DRAWING

1)How many petals does it have?

2)Can you see the structures containing the

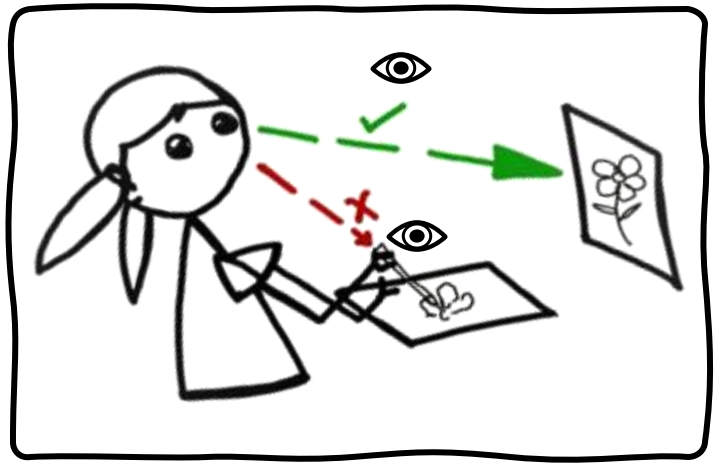
pollen?

3)What other details can you see?

ACTIVITY 1: Look carefully at the flower below. We will paint it later.

OBSERVATIONAL DRAWING

ACTIVITY 2: Drawing without looking!



1) **Look** at the flower in the previous page.
2) **Not looking at the page**, try and draw the flower in the space below.
3) Need help?
You can look at the flower and imagine your hand is travelling around the details.

OBSERVATIONAL DRAWING

ACTIVITY 3: Drawing what you see!

1) **Look** at the flower in the previous page.

2) **Draw the flower.**

3) Pay attention to the details.

4) It does not have to be perfect!