The possibility to solve water shortage with plants

Outline

1.The present situation of water shortage

2.Solution

3.Methods & Results

4.Conclusion

5.Reference

1. The present situation of water shortage

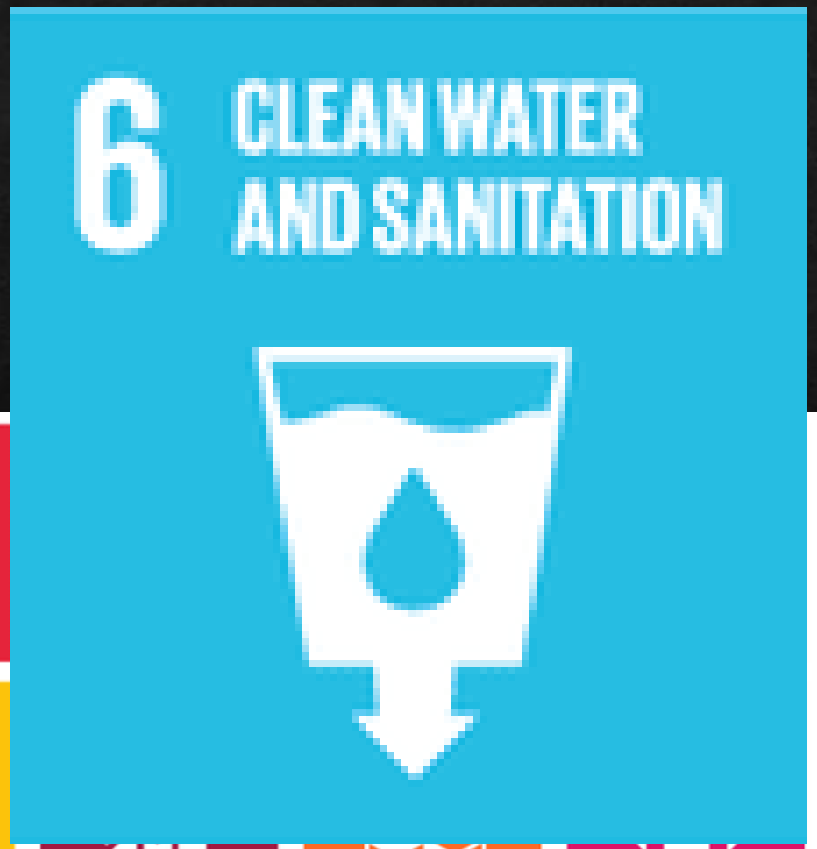
Big difference

Spread of waterworks

No waterwork

SDGs（Sustainable Development Goals）

・・・The UN advocated in 2015



To provide all people with access of water and sustainable maintenance

Three goals of water shortage

1.To get its device easily

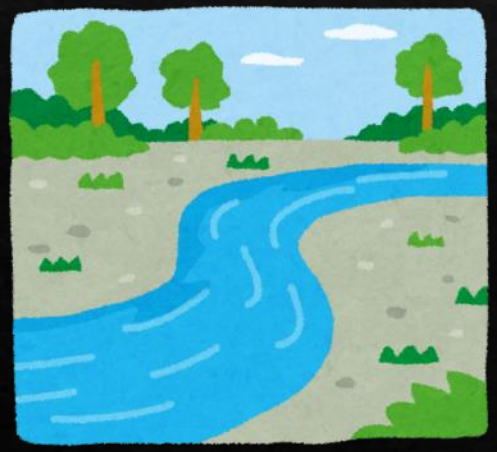
2.To get water needed a day （2.5 L）

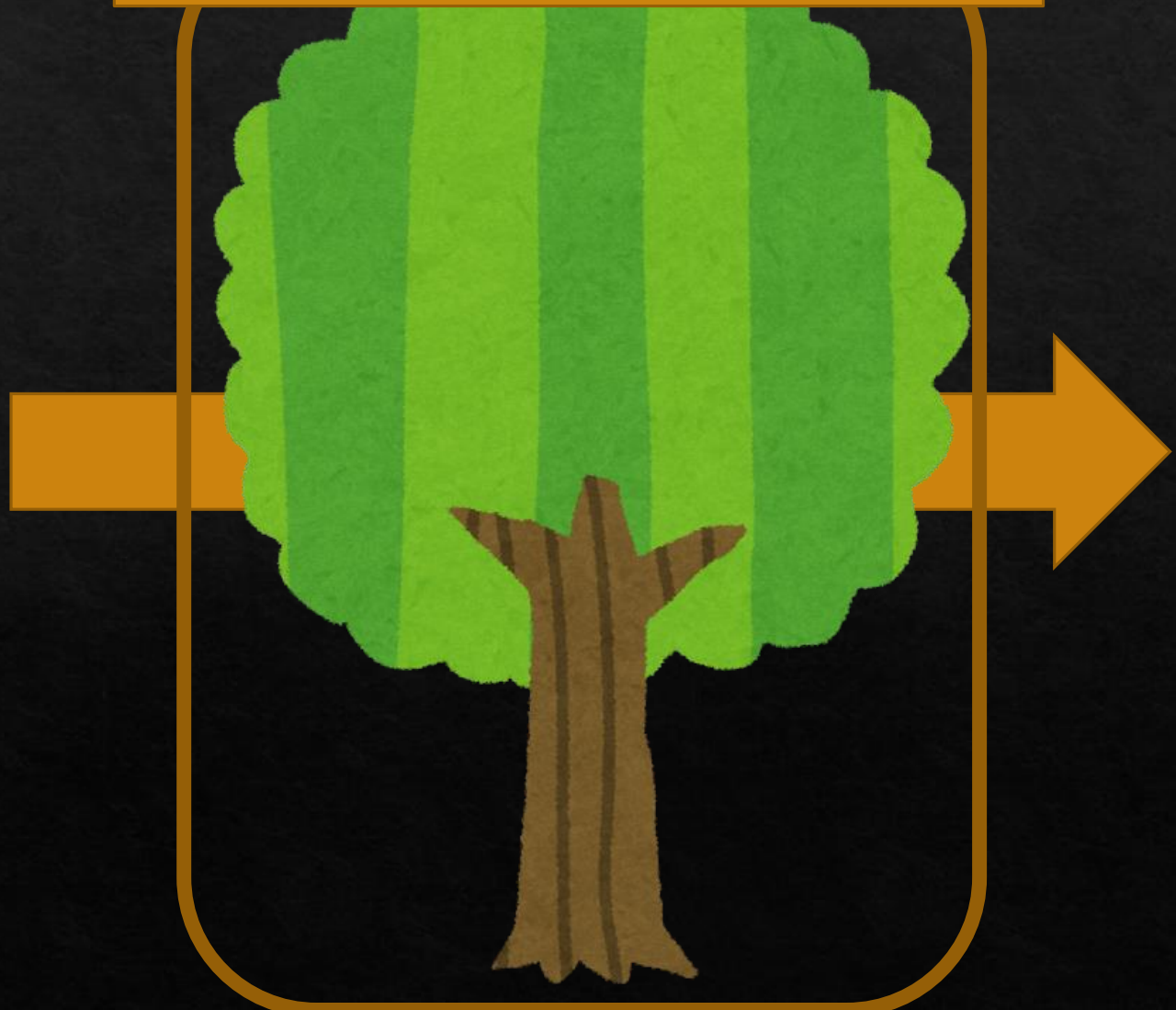
3.To use device easily

2.Solution

Transpiration

Water purification device



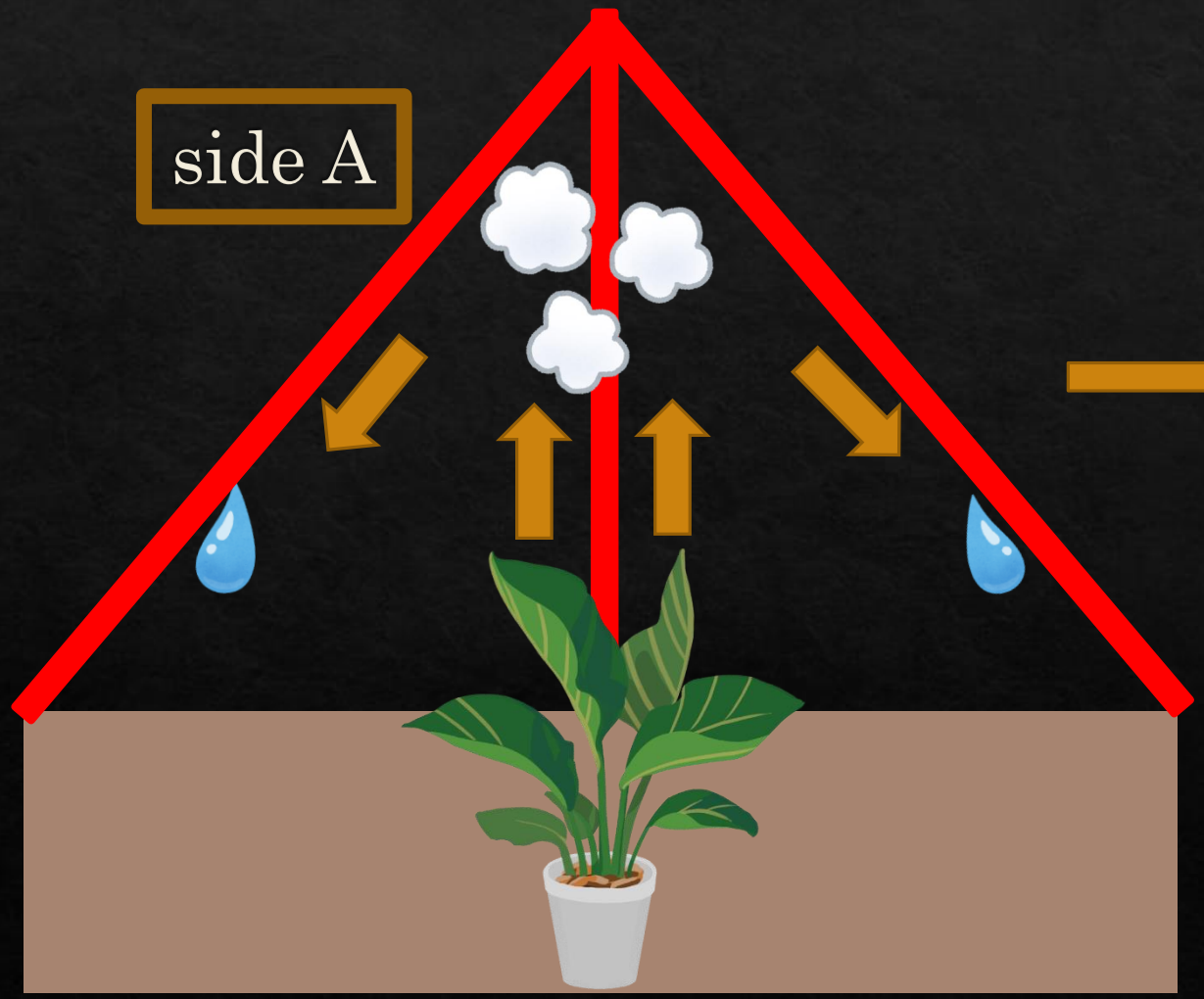


pH is around 7

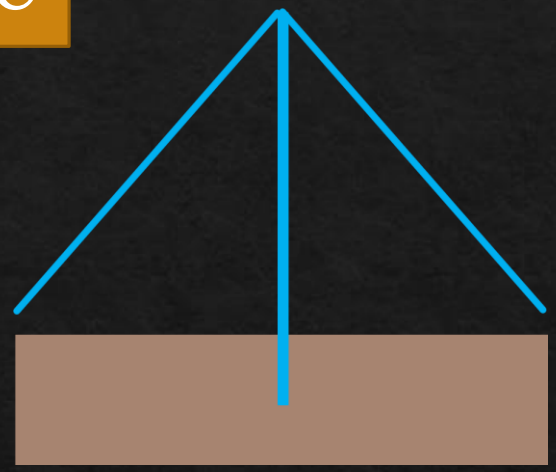
3．Method

Assumed device

side A



Device

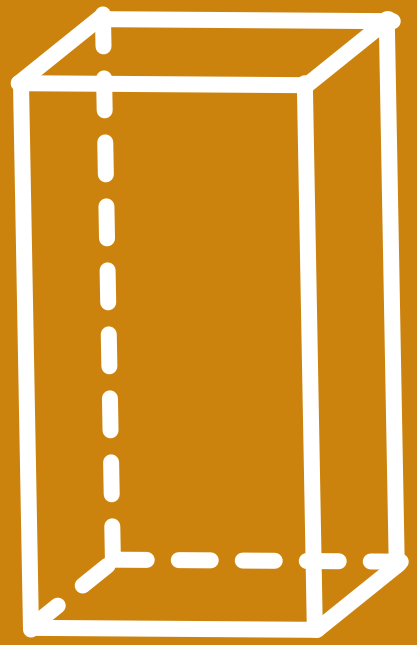


Plant

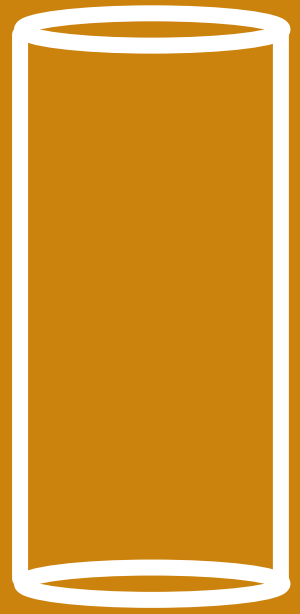
Experiment 1 Examine the shape of side A

Examined 3 patterns

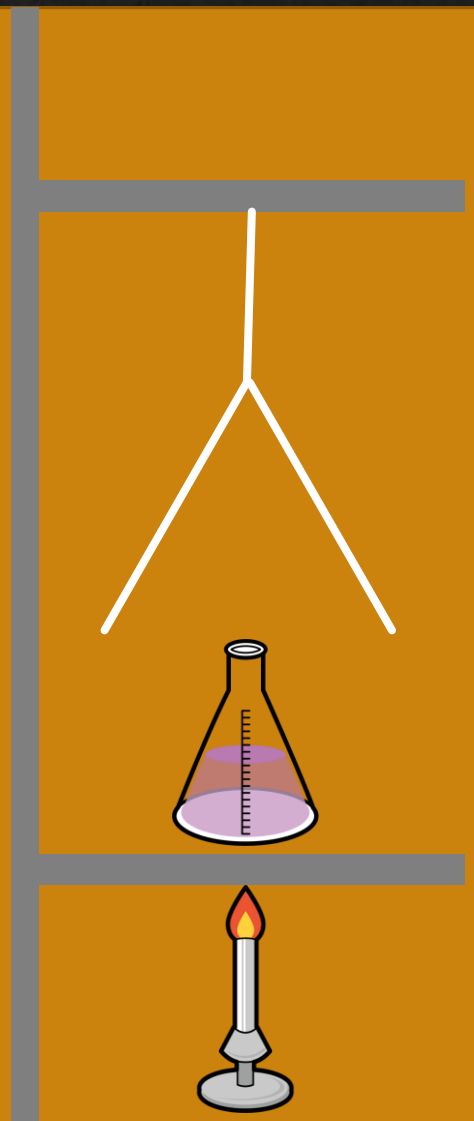
Pattern 1



Pattern 2



Pattern 3

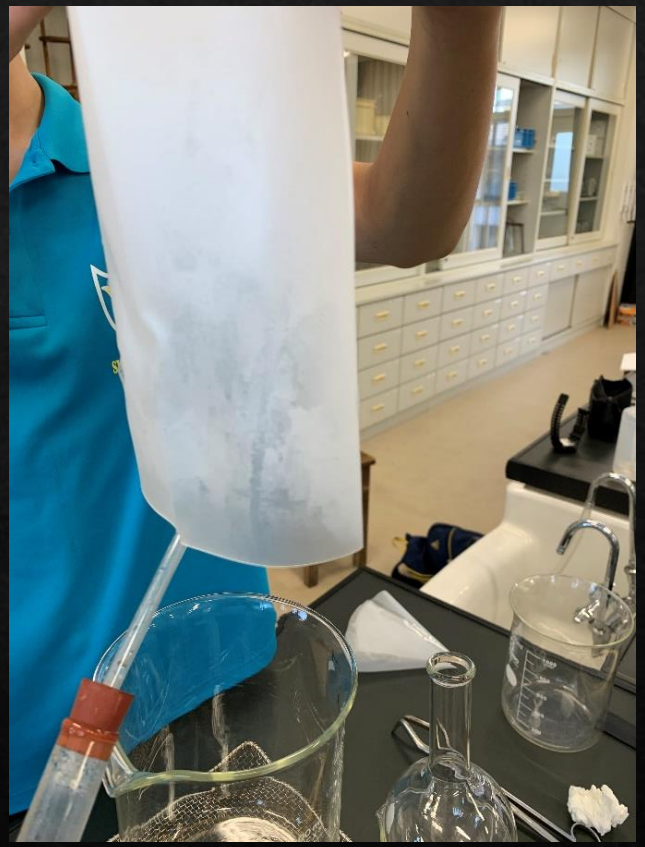


- Examine 3 shapes
- Gather vaper in the air for a minutes
- Examine five times
- Start experiment when water boils

Experiment

Pattern 1

Pattern 2

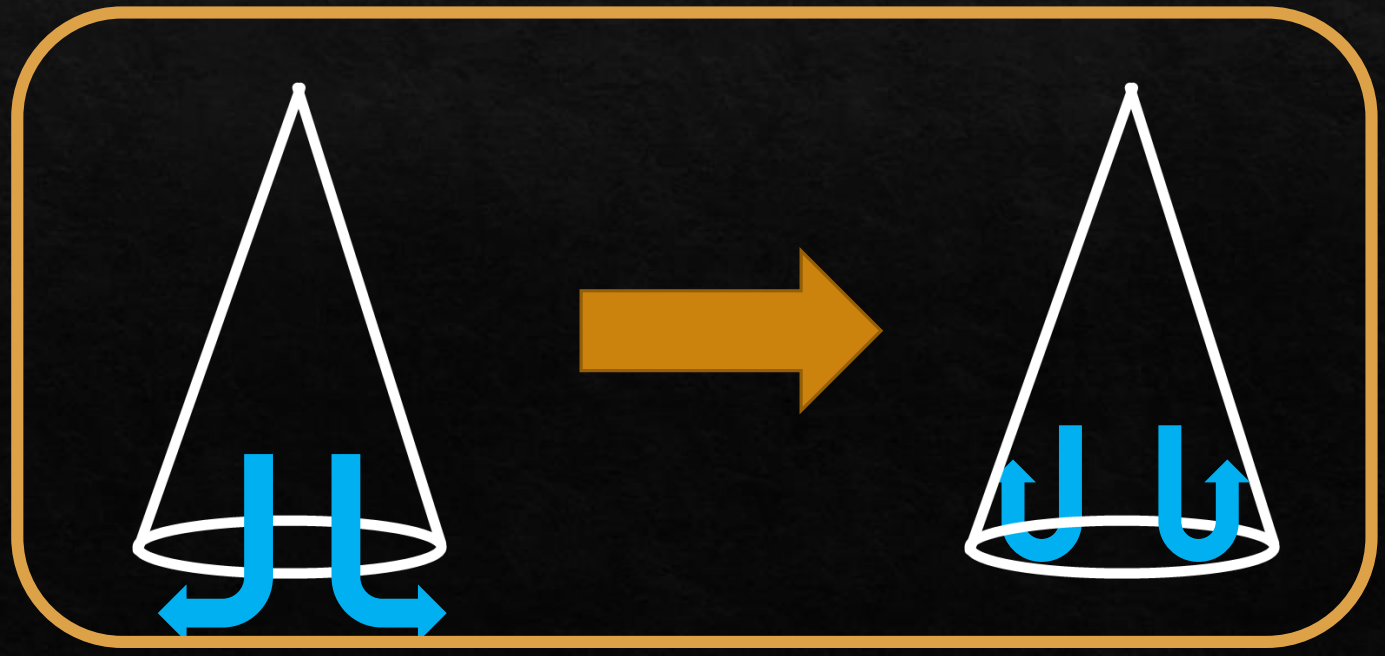


Pattern 3

Result 1

- Little water separated
- No difference in 3 shapes

Vaper went out from opening space at the bottom



Experiment 2　Examine the material of side A

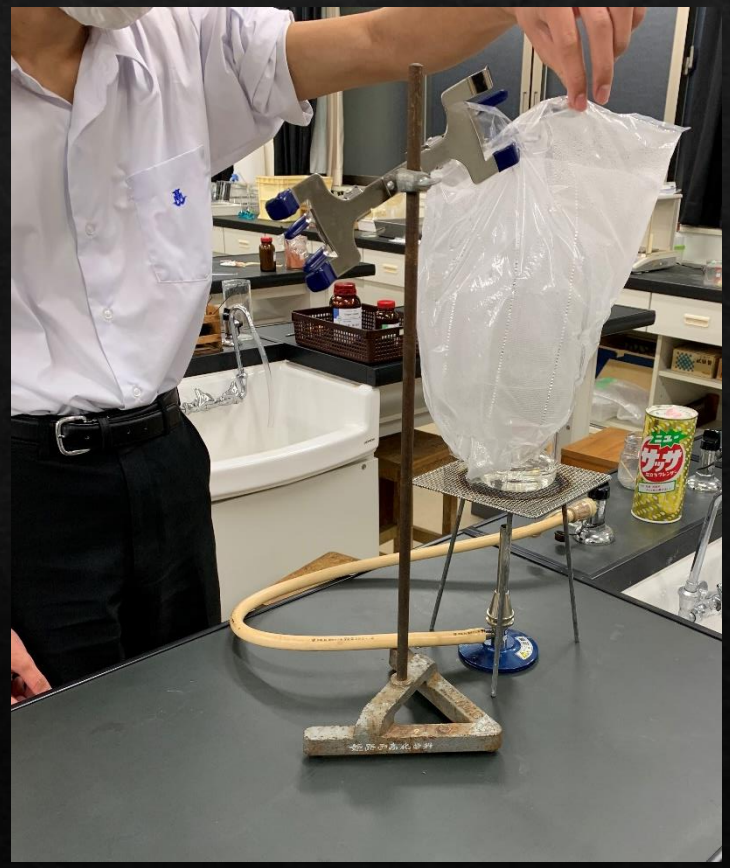
- Warka Water　gather 90 L water a day

compare the
amount of water by nets

Experiment

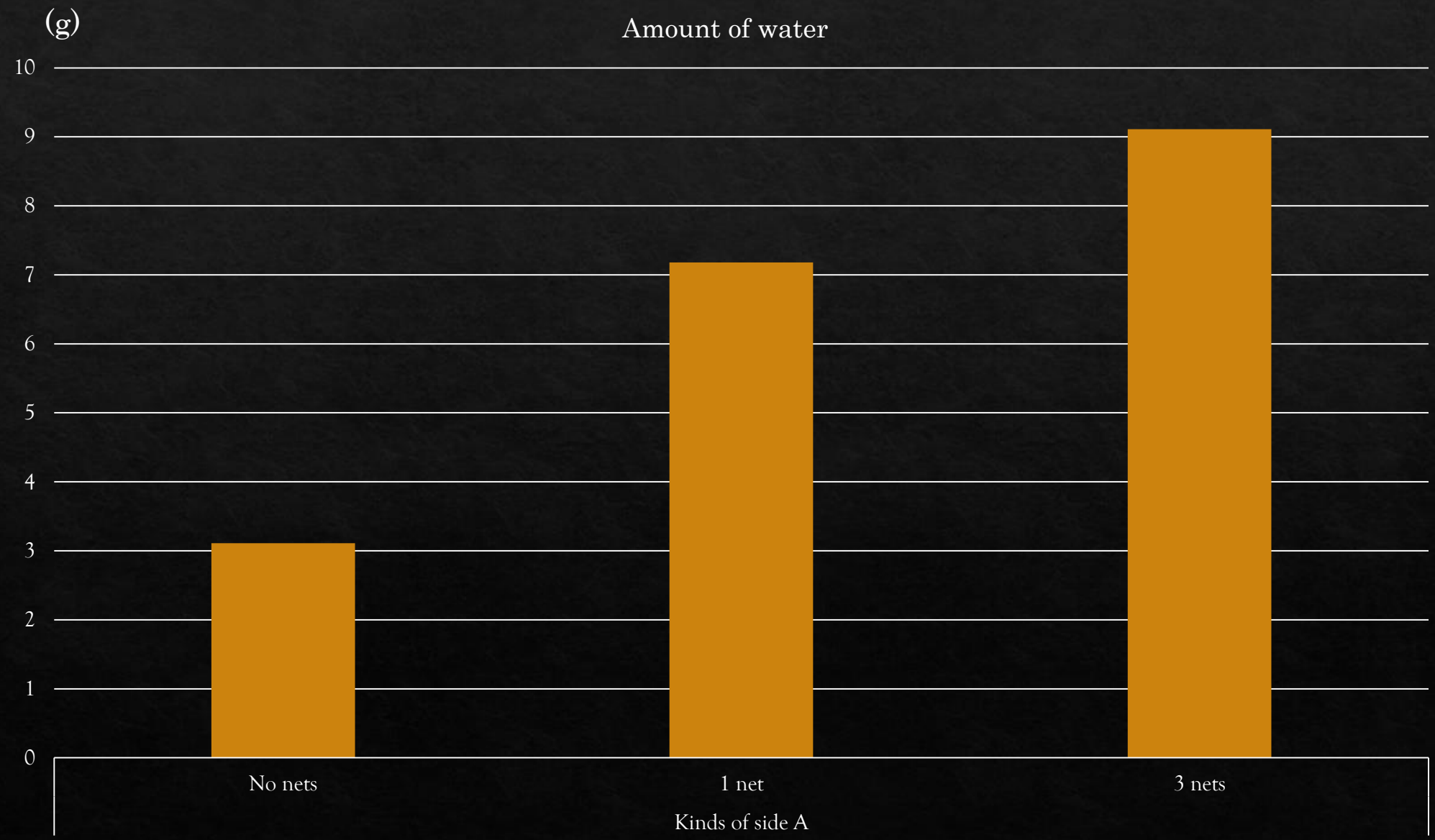
No nets

1 net

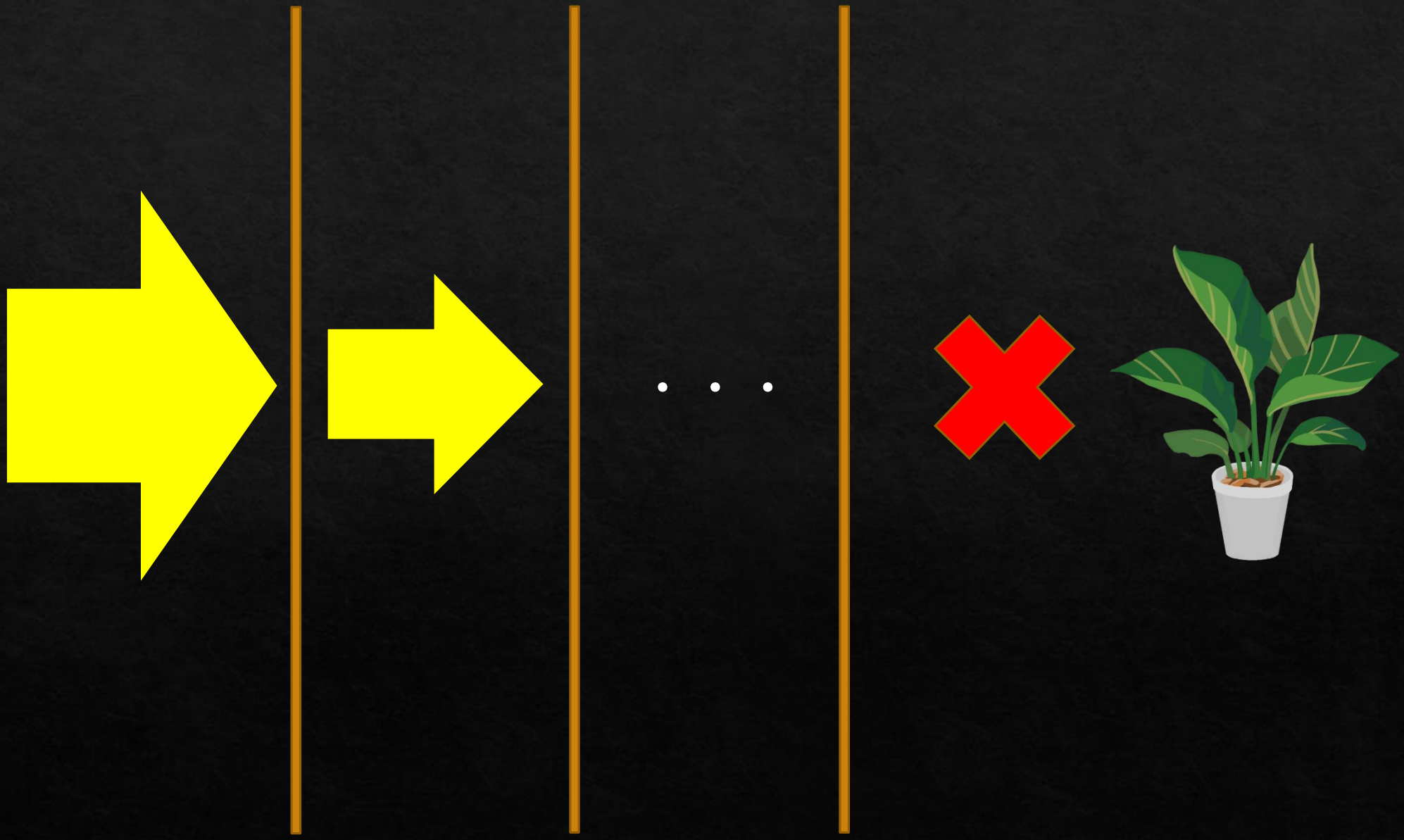


3 nets

Result 2


(g)
Amount of water
10
9
8
7
6
5
4
3
2
1
0
No nets
1 net
3 nets
Kinds of side A

Separated water increases as the number of nets increases, but this experiments about plants.



Experiment 3 Examine the balance between nets and light

Plants were tulip tree

Examined for 6 hours

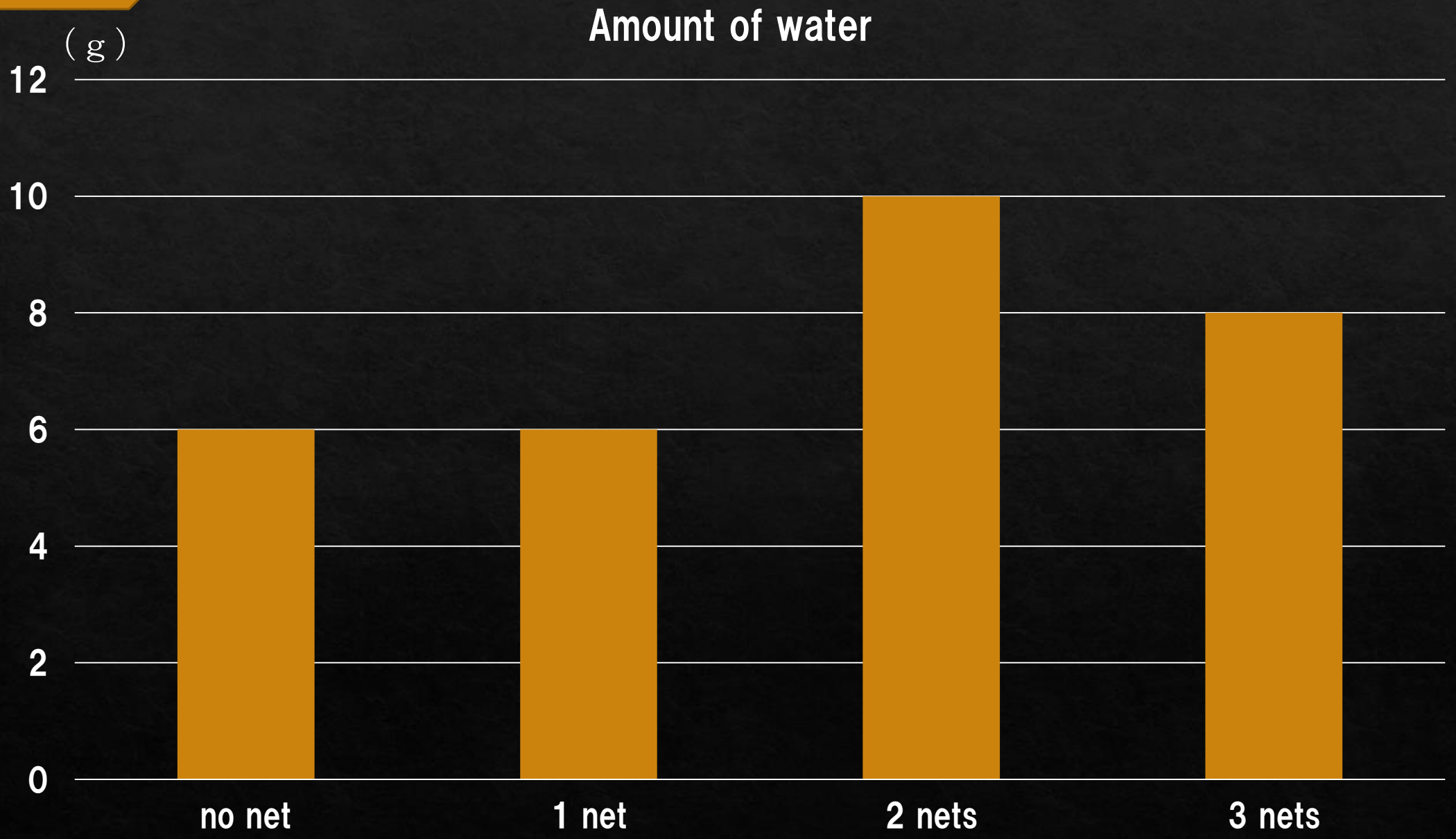
No nets

1 net

2 nets

3 nets

Result 3



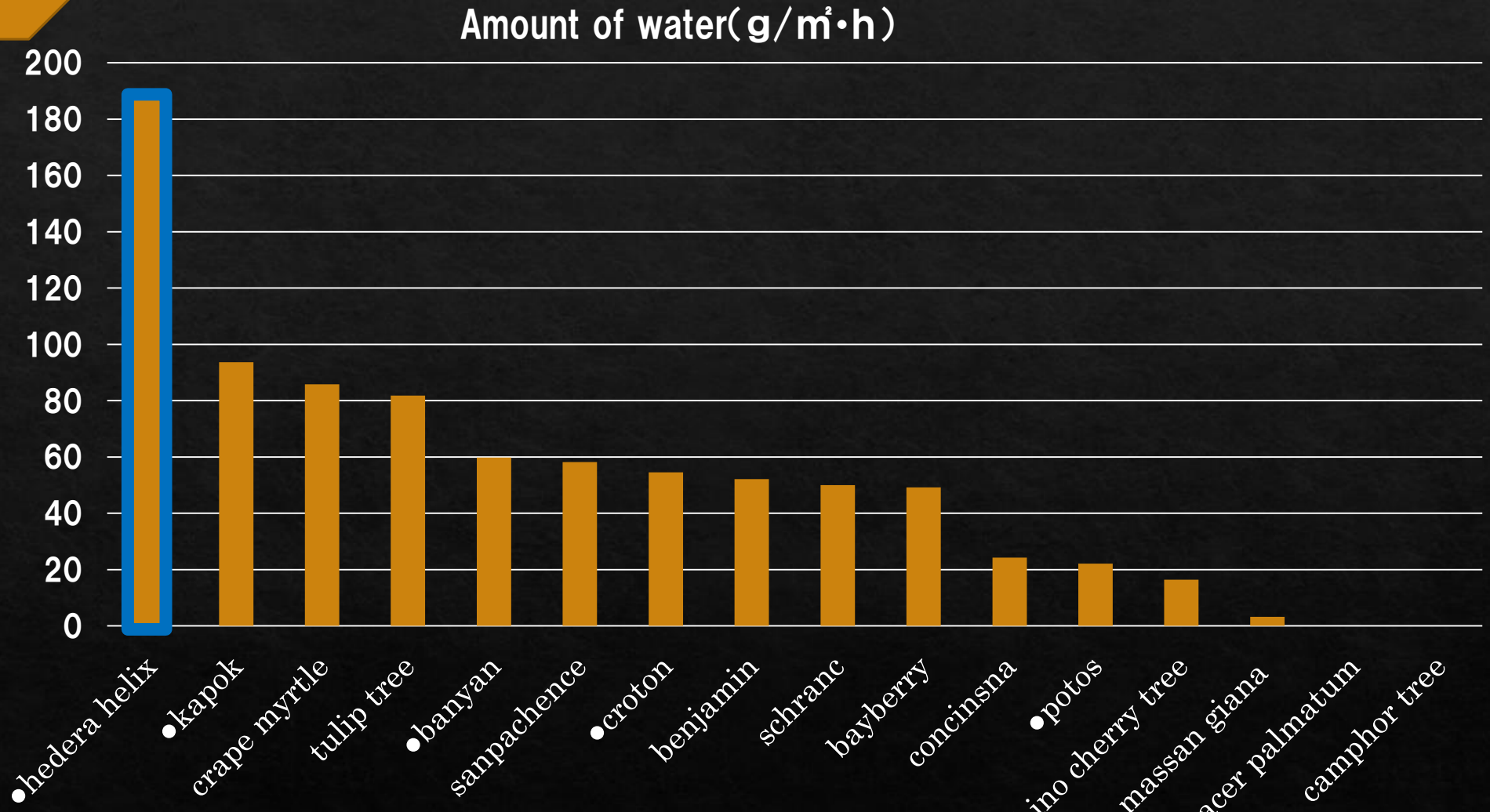
Experiment 4 Examine amount of transpiration water by plants

・The unit is g/㎡・h

・The area of leaves is estimated by mesh method

・considered the previous research

Result 4



●Reference :https://www.jstage.jst.go.jp/article/jila1994/58/5/58_5_97/_pdf/-char/ja

Water from Hedera Helix is the largest

190g/㎡・h

To get 2.5 L water・・・

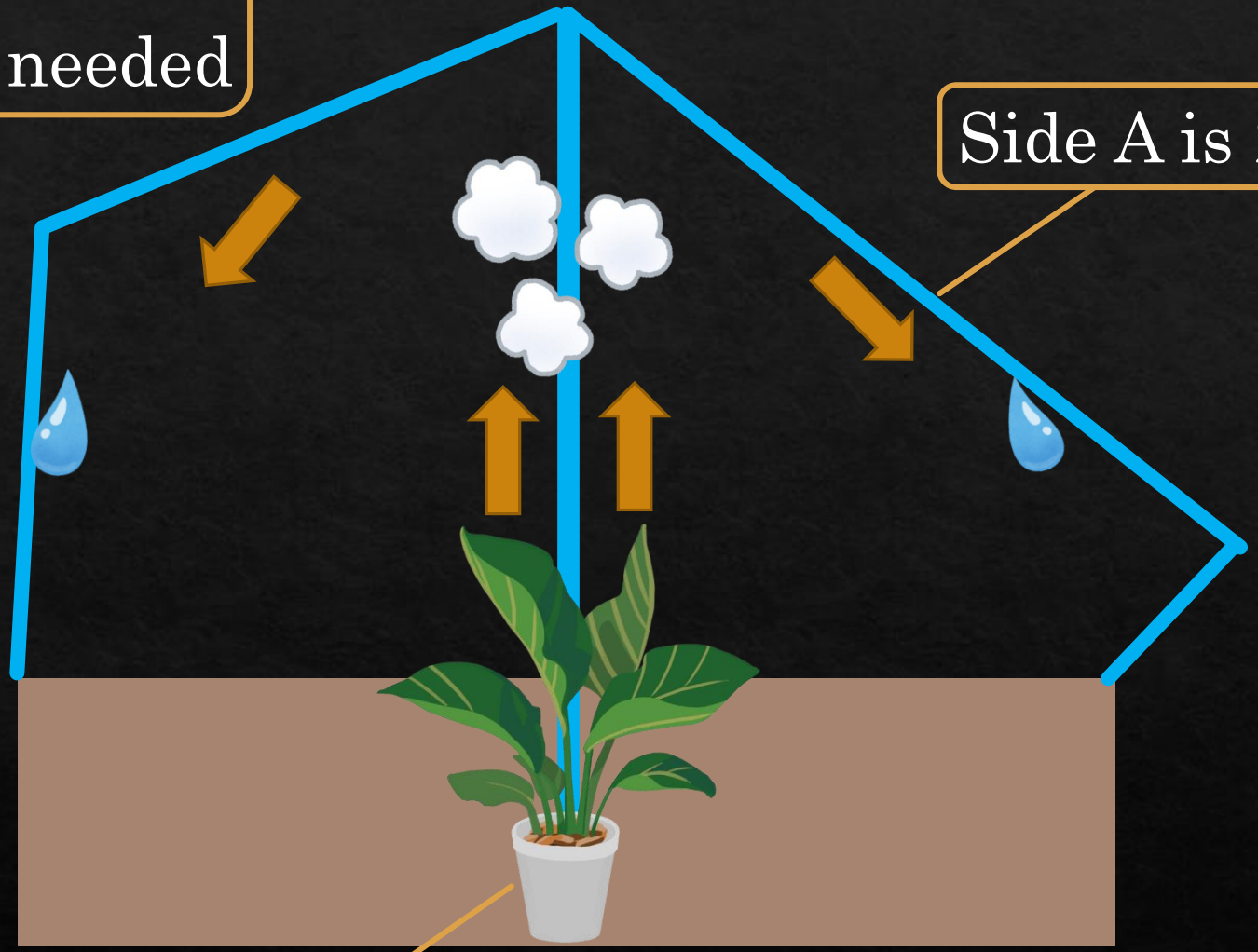
1㎡　　14hours

2㎡　　7hours

https://www.google.co.jp/url?sa=i&url=https%3A%2F%2Fgreensnap.jp%2Fpost%2F7180183&psig=AOvVaw1vFc4DMYqaepmuYBL47HH1&ust=1606370602965000&source=images&cd=vfe&ved=0CAMQjB1qFwoTCLikndiHne0CFQAAAAAdAAAAABAH

4.Conclusion

Any shape is OK
Confined space is needed



Side A is 2 nets

Hedera Helix

Prospect

Examine more efficient device

Ex) ・balance of land
・way of using easily

Aim at solving water shortage

5.Reference

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Thank you for listening