

## Virtual Lab 6 Cellular Respiration

[http://www.phschool.com/science/biology\\_place/labbench/lab5/intro.html](http://www.phschool.com/science/biology_place/labbench/lab5/intro.html)

1) Define mitochondria

2) Define ADP

3) Define ATP

Click *Next*

4) Define respiration

5) Fill in the equation below with the appropriate words

- carbon dioxide
- ADP
- water
- oxygen
- glucose
- ATP

+  +  =  +  +

6) Define photosynthesis

Click *Next Concept*

7) What are some processes in plants that require ATP?

Click *A Closer Look* and then click *Animate*

Click *Next*

8) What are three ways you can measure the rate of cellular respiration?

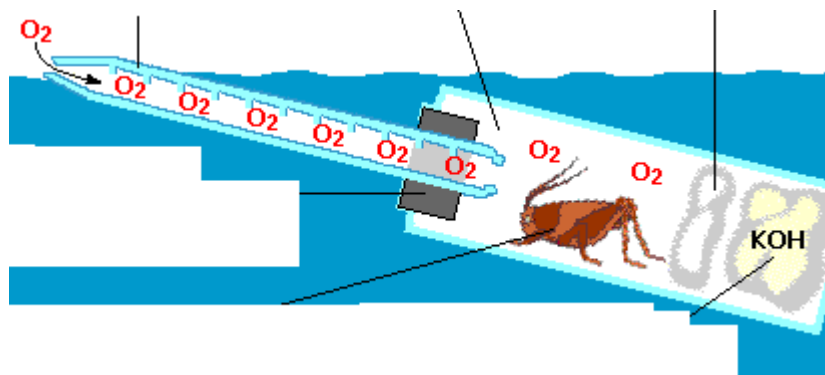
a.

b.

c.

9) What is the respirometer in the experiment going to measure?

10) Label the apparatus below

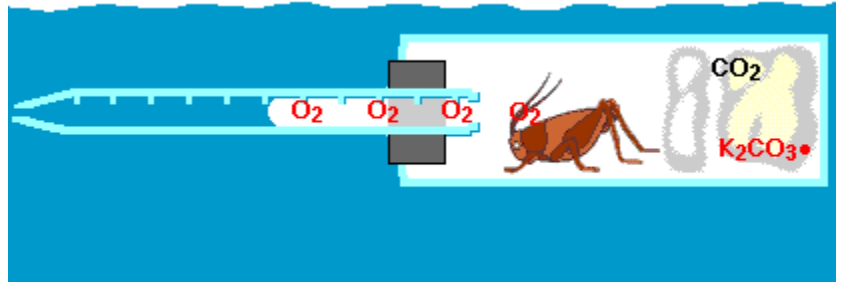


11) Does cellular respiration occur in plants?

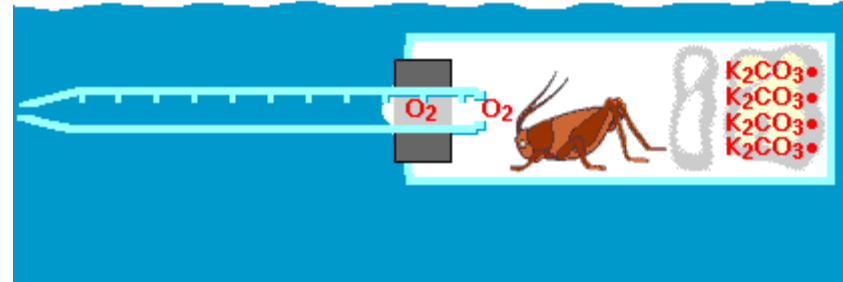
Click *Next*

Use the two diagrams below to answer the following questions

12) Why isn't any air getting into the pipette?



13) Why is water entering the pipette?



14) Why is CO<sub>2</sub> gas being produced?

15) Where is the CO<sub>2</sub> gas going?

16) Why is measuring the volume of water in the pipette equivalent to measuring the rate of respiration?

Click *Next*

17) Define meniscus

18) Explain how to read a pipette

19) Answer the question below

The reading for the pipette illustrated here is

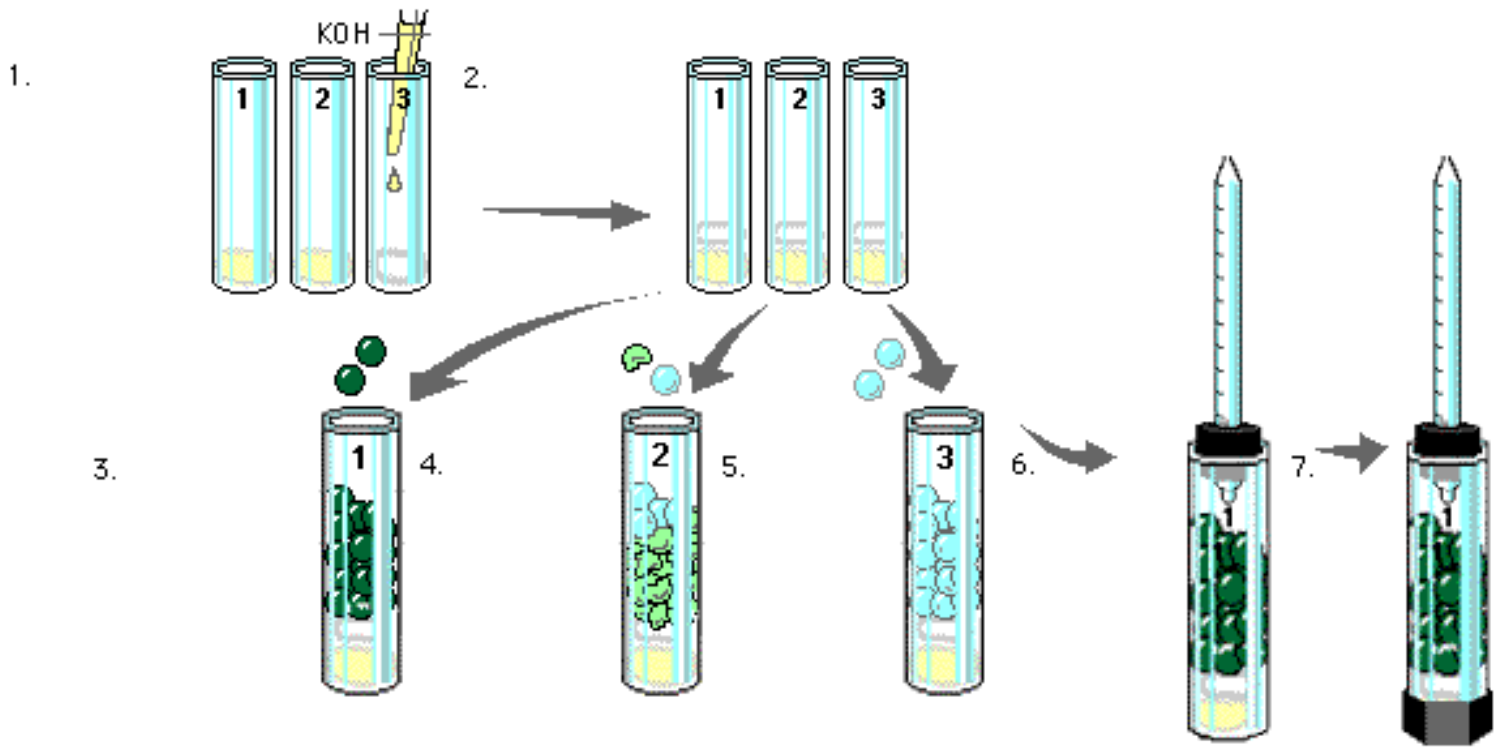
Check Your Answers

Click *Next*

20) What is the control in this experiment?

21) Why is a control necessary?

22) Fill in the diagram below



23) Explain Why absorbent cotton is soaked in KOH

24) Why is the absorbent cotton covered with nonabsorbent cotton?

25) Why are glass beads added to the 3 vials?

26) Why do the 3 vials need the same volume?

27) Why do you need to let the respirometers equilibrate for several minutes in the water baths?

Click *Next*

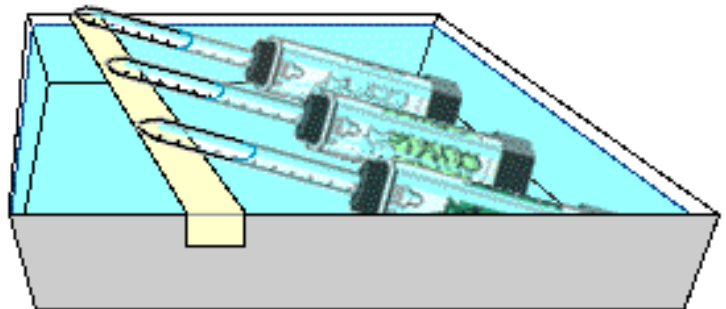
28) Define germination

29) Do dormant seeds respire?

Click *Next*

30) Describe the 5 steps of the experimental design below

1.

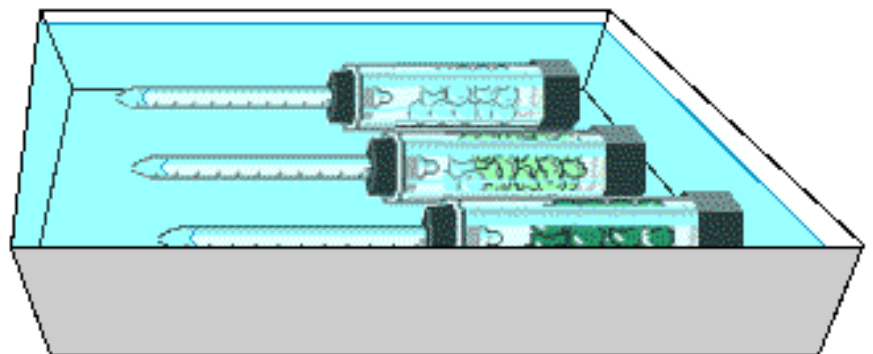


2.

3.

4.

5.



31) What is the equation for the gas laws?

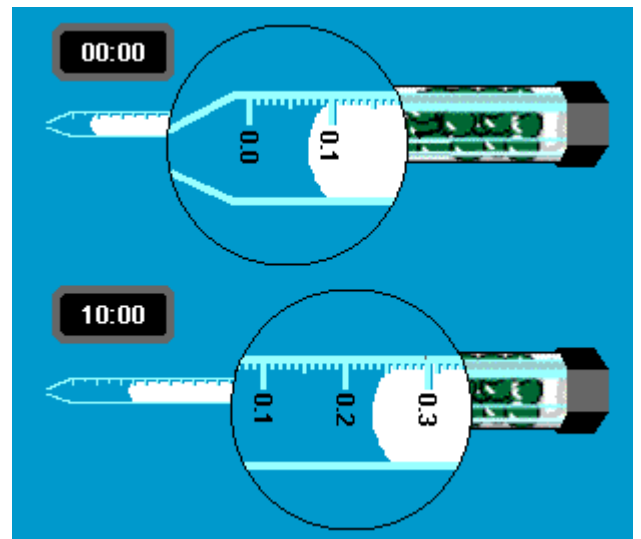
32) What happens to gas volume when temperature increases? Use the equation above to explain your answer.

33) What happens to gas volume when temperature decreases? Use the equation above to explain your answer.

34) How are you going to account for changes in volume due to changes in temperature?

Click *Next*

35) Calculate the rate of oxygen consumption for the illustration below. **SHOW YOUR WORK!**

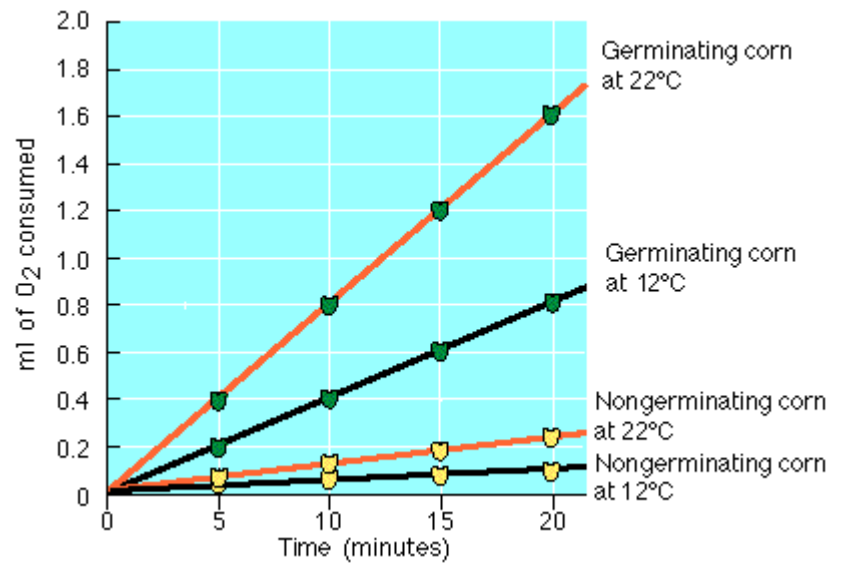


Click *Self Quiz*

36) Write the answer to question #1

37) Explain the answer to question #1

38) What is the rate of oxygen consumption in germinating corn at 12°C?



39) Explain your answer to the question above. SHOW YOUR WORK!

40) Write the answer to question #3

41) What is the role of KOH in this experiment?

42) Explain your answer to the question above