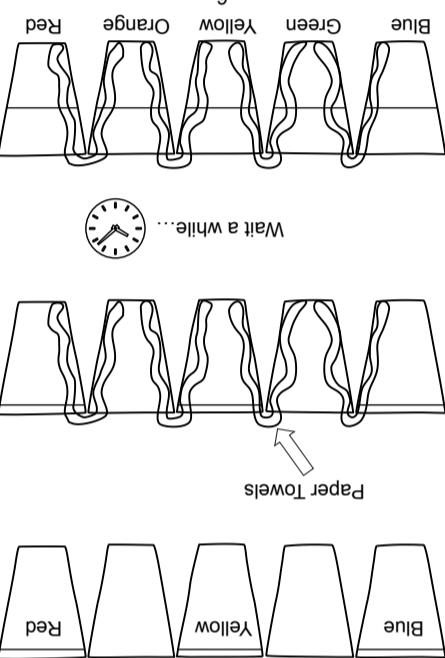




SCIENCE MOM

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3. Straw siphon

Materials:

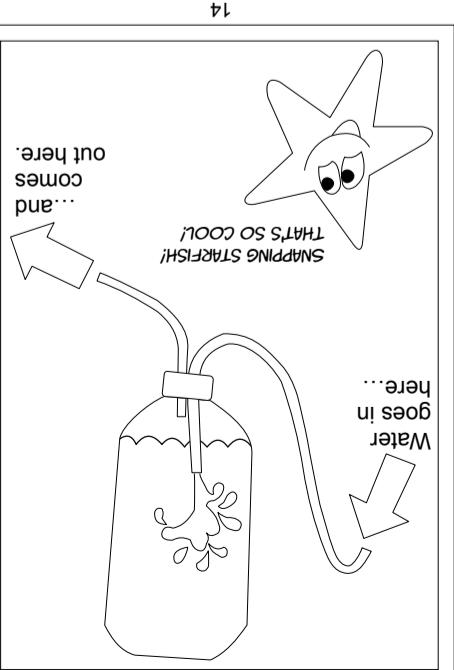
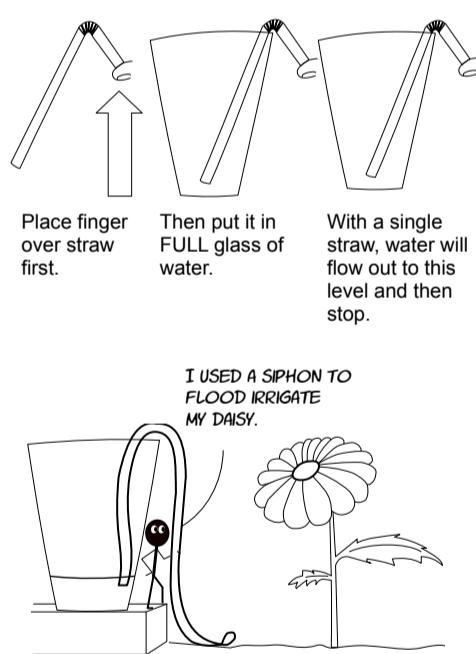
- Bendable drinking straws
- Cup
- Water
- Tape or plastic tubing (optional)

Method:

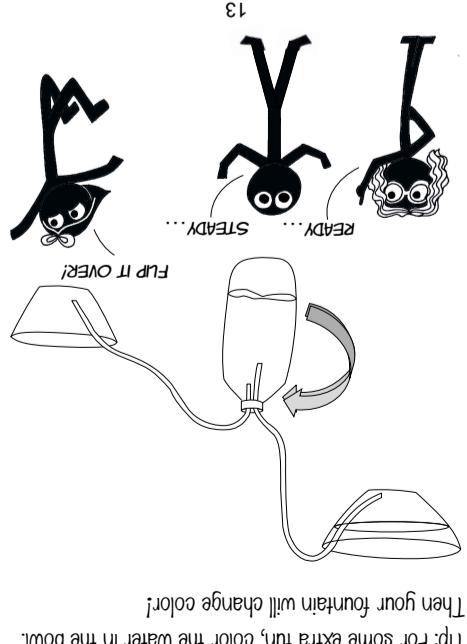
- Fill cup to brim with water.
- Put finger over top of straw to seal in the air.
- Submerge the straw into the cup so that the bend of the straw rests on the rim of the cup.
- Release thumb from straw and watch the water flow.

Tip: To make a siphon that can empty the whole cup, use tubing or carefully join two straws together with tape.

7



14



Tip: For some extra fun, color the water in the bowl around the tube. If there's a leak in the lid, then your fountain will change color!

Tip: Use glue and/or tape to seal the fountain. It needs to be airtight. If there's a leak in the lid, then the fountain won't work.

c) Use glue and/or tape to seal the fountain. It needs to be airtight. If there's a leak in the lid, then the fountain won't work.

d) Fill the bottle with enough water to cover the shorter tube and screw on the lid.

e) Place the taller tubing in a bowl or pot of water that is higher than the bottle and put the other end where the water can drain.

f) Flip the bottle upside down and where the water can drain.

g) Use glue and/or tape to seal the fountain. It needs to be airtight. If there's a leak in the lid, then your fountain will leak in the lid.

h) Put the bottle lid with one of tubing into the lid.

i) Carefully make two holes in the lid using the scissors, knife, or drill.

j) Put the two pieces of tubing into the lid.

k) Fill the bottle with water.

l) Fill the bottle upside down and where the water can drain.

m) Use rubber glue, sealant, and/or aquarium tubing to seal the bottle lid with one of the pieces of tubing.

n) Water goes in here...

o) Water comes out here...

p) Water goes in here...

q) Water comes out here...

r) Water goes in here...

s) Water comes out here...

t) Water goes in here...

u) Water comes out here...

v) Water goes in here...

w) Water comes out here...

x) Water goes in here...

y) Water comes out here...

z) Water goes in here...

aa) Water comes out here...

bb) Water goes in here...

cc) Water comes out here...

dd) Water goes in here...

ee) Water comes out here...

ff) Water goes in here...

gg) Water comes out here...

hh) Water goes in here...

ii) Water comes out here...

jj) Water goes in here...

kk) Water comes out here...

ll) Water goes in here...

mm) Water comes out here...

nn) Water goes in here...

oo) Water comes out here...

pp) Water goes in here...

qq) Water comes out here...

rr) Water goes in here...

ss) Water comes out here...

tt) Water goes in here...

uu) Water comes out here...

vv) Water goes in here...

ww) Water comes out here...

xx) Water goes in here...

yy) Water comes out here...

zz) Water goes in here...

aa) Water comes out here...

bb) Water goes in here...

cc) Water comes out here...

dd) Water goes in here...

ee) Water comes out here...

ff) Water goes in here...

gg) Water comes out here...

hh) Water goes in here...

ii) Water comes out here...

jj) Water goes in here...

kk) Water comes out here...

ll) Water goes in here...

mm) Water comes out here...

nn) Water goes in here...

oo) Water comes out here...

pp) Water goes in here...

qq) Water comes out here...

rr) Water goes in here...

ss) Water comes out here...

tt) Water goes in here...

uu) Water comes out here...

vv) Water goes in here...

ww) Water comes out here...

xx) Water goes in here...

yy) Water comes out here...

zz) Water goes in here...

aa) Water comes out here...

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cc) Water comes out here...

dd) Water goes in here...

ee) Water comes out here...

ff) Water goes in here...

gg) Water comes out here...

hh) Water goes in here...

ii) Water comes out here...

Did you know that plants release water through tiny holes in their leaves?

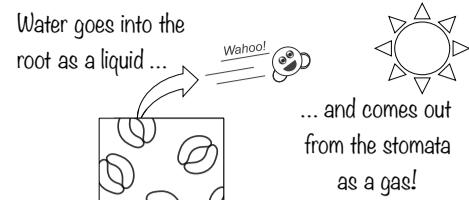
Water enters the plant at the roots and is drawn up through tiny tubes called **xylem**.

When it gets to the leaves, water evaporates out through small holes or pores called **stomata**, which can be opened or closed.

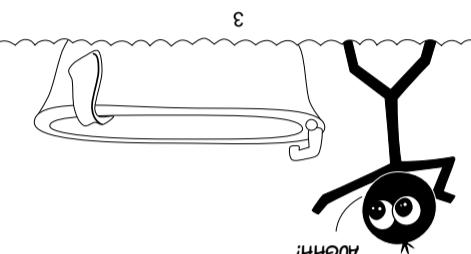
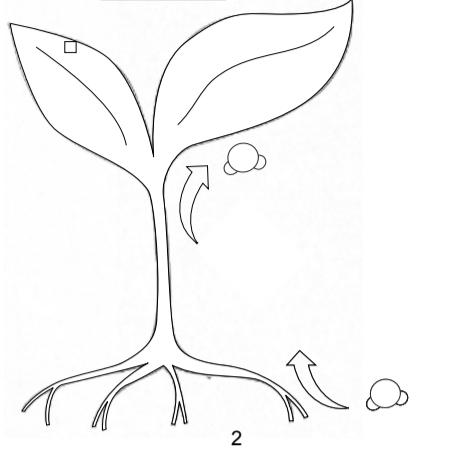
COOL FACT:

Plants can only get the air they need (CO_2), if their stomata are open. Since their stomata can only be open if they have enough water, that means plants can only breathe when they have water. A wilting plant is, essentially, trying to stay alive by holding its breath.

1



... and comes out from the stomata as a gas!



Plants aren't the only things that can move one location to another. Cloth can alsowick water from water. Cloth can alsowick water

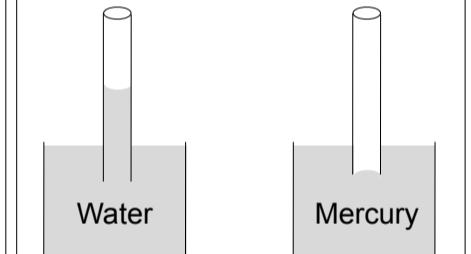
HOW DOES IT WORK? Capillary Action.

Another cool property of water.

Because water likes to stick to itself and other surfaces, it can flow through small spaces all on its own without the help of pumps or gravity.

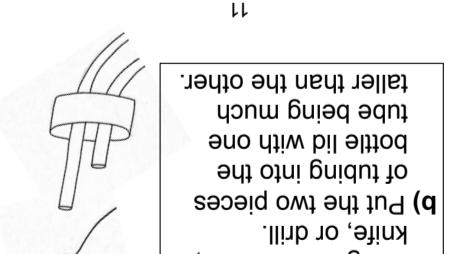
Siphons work because of physics. The water is still flowing downhill, even if it goes up over a bump to get there. But with the help of capillary action, water really can flow UPHILL.

Capillary action exists because of adhesion: water being attracted to other surfaces. It plays an important role in both biology (ever heard of capillaries?) and geology (frost wedging and weathering!).



If we put a small tube in water, the water in the tube will climb up above the level of the rest of the liquid. The water is attracted to the sides of the tube (adhesion) and so we get capillary action!

6



a) CAREFULLY make two holes in the lid using the scissors, knife, or drill. Put the two pieces of tubing into the lid. Put the bottle lid with one of the pieces of tubing into the lid. Water goes in here...

b) Put the bottle upside down and the water will go up the tube. Water goes in here...

c) Use glue and/or tape to seal the fountain. It needs to be airtight. If there's a leak in the lid, then the fountain will leak in the lid.

d) Fill the bottle with water. Water goes in here...

e) Place the taller tubing in a bowl or pot of water that is higher than the bottle and screw on the lid.

f) Fill the bottle upside down and the water will go up the tube. Water goes in here...

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s) Use glue and/or tape to seal the fountain. It needs to be airtight. If there's a leak in the lid, then the fountain will leak in the lid.

t) Fill the bottle with water. Water goes in here...

u) Place the taller tubing in a bowl or pot of water that is higher than the bottle and screw on the lid.

v) Fill the bottle upside down and the water will go up the tube. Water goes in here...

w) Use glue and/or tape to seal the fountain. It needs to be airtight. If there's a leak in the lid, then the fountain will leak in the lid.

x) Fill the bottle with water. Water goes in here...

y) Place the taller tubing in a bowl or pot of water that is higher than the bottle and screw on the lid.

z) Fill the bottle upside down and the water will go up the tube. Water goes in here...

aa) Use glue and/or tape to seal the fountain. It needs to be airtight. If there's a leak in the lid, then the fountain will leak in the lid.

bb) Fill the bottle with water. Water goes in here...

cc) Place the taller tubing in a bowl or pot of water that is higher than the bottle and screw on the lid.

dd) Fill the bottle upside down and the water will go up the tube. Water goes in here...

ee) Use glue and/or tape to seal the fountain. It needs to be airtight. If there's a leak in the lid, then the fountain will leak in the lid.

ff) Fill the bottle with water. Water goes in here...

gg) Place the taller tubing in a bowl or pot of water that is higher than the bottle and screw on the lid.

B

A

A

X

B

C

C

D

F

E

E

D

E

G

G

X