How green is the ?

SMART KIDS LAB
Step by Step

SMART KIDS LAB

How clean is the air you breathe? Is swimming water the same as drinking water? How many microbes live in the soil beneath your feet? And what does it all mean? DISCOVER how healthy your neighbourhood is and what you can do to improve it. SMART KIDS LAB lets you examine the water, noise, air, earth and light around you with homemade measuring instruments. On the smartkidslab.nl website, you'll find out how to make the measuring instruments (meters) and how you can GET STARTED.

HOW GREEN IS THE GROUND??

YOU'LL BE INVESTIGATING THE AMOUNT OF GREENERY GROWING IN YOUR AREA. You don't usually find a lot of trees in the city. And that's too bad! Trees and plants are both beautiful and VERY USEFUL! The MORE greenery there is, the LOWER the temperature will be in the city. You might be glad that it's hot at times, but sometimes it's really TOO HOT! When it rains too much, having a lot of plants can keep the streets from flooding. Rainwater can't sink into the ground if there is too much stone, concrete, or asphalt. And trees transform air polluted with CO_2 into nice, breathable oxygen.

HOW DOES IT WORK?

It all begins with the QUESTION: What do you want to measure? Do you already know? GREAT! Now you can GET GOING.

STEP 1.

You start by making the MEASURING INSTRUMENT. *What you'll need: Smart Kids Lab / making meters. There you'll find all the information you need to get started.

STEP 2.

Now it's time to go do RESEARCH and experiment. Before you start, think about what you want to investigate in your area and how to go about doing it.

Do you want to know why it's so HOT in your neighborhood? Or why your neighbor's basement always floods? Or do you just want to see what the world looks like from above? Then make yourself A KITE and follow the rest of the instructions. From the sky, your neighborhood will look a lot clearer!

*What you'll need: the Smart Kids Lab / experiments worksheet. This explains how to use your homemade meter to collect data.

STEP 3.

Collect the measurement DATA on the Smart Kids Lab worksheet. *What you'll need: the Smart Kids Lab / experiments worksheet. You can record your measurements here.

STEP 4.

Go grab the COMPARE-O-METER so you can compare your measurement data to that of others. You'll also find a lot of interesting information here. *For this you'll need: Smart Kids Lab / compare-o-meter worksheet.

STEP 5.

Take a picture of your measurement data and put it on the GREAT DATA MAP. You can find it at smartkidslab.nl.

*What you'll need: You can take a photo with a phone or digital camera. THE GREAT DATA MAP can be found at smartkidslab.nl (in the menu bar).

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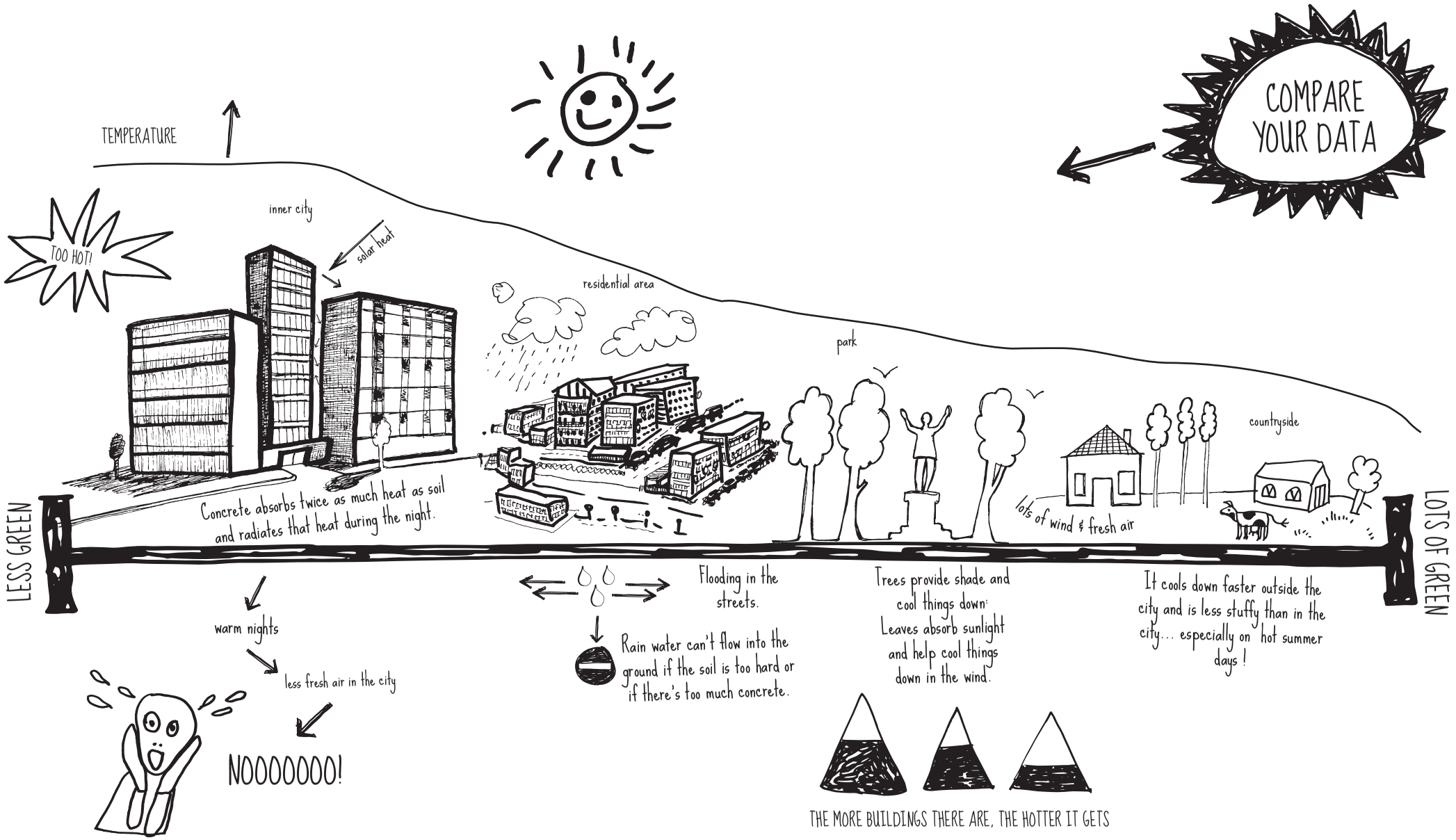
How green is the ?

SMART KIDS LAB
compare-o-meter



How **green** is the ?

SMART KIDS LAB
making Meters

DISCOVER HOW HEALTHY YOUR NEIGHBORHOOD IS AND WHAT YOU CAN DO TO IMPROVE IT!

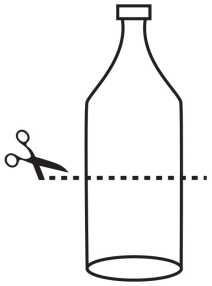
Tall buildings and pavement trap a lot of sun and retain the heat for a long time. As a result, summertime quickly becomes too hot in big cities. And when it storms, water can't sink through the asphalt very easily, so the roads flood. Grass, trees and soil don't absorb as much heat. This GROUND COVER cools faster and rainwater flows through it more easily. Having lots of GREENERY nearby is good!

HOW GREEN IS YOUR NEIGHBORHOOD? You could just walk around and take a good look. But it would be difficult to determine the surface area of green spaces. Is that field of grass bigger than the parking lot? Or you could do something a lot more fun: creating an AERIAL VIEW PHOTO and see exactly how much green there is. Make a GROUND COVER METER!

WHAT DO YOU NEED?

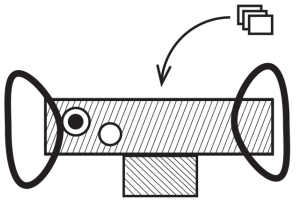
- (Empty) soda bottle
- Kite
- Twine / strong string
- 2 elastic bands
- Camera with 'continuous mode'
- Scissors
- Tape
- Plastic plate or coaster

1.



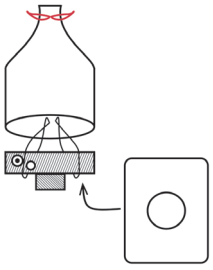
Take a large, empty soda bottle (that your camera can fit inside) and cut the bottle through the middle.

2.



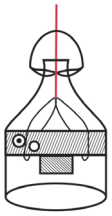
Look for a continuous mode on your camera. This will ensure the camera constantly takes photos while in the sky. The function is usually marked by a symbol with the three rectangles. Wrap two elastics around the camera and place the camera in the bottle.

3.



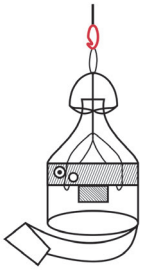
Also make sure to secure a base to the bottle to protect your camera from falling. This could be a plastic plate or coaster with a hole punched in it so the lens of the camera fits through. Make two holes on the neck of the bottle and attach a piece of twine to both sides.

4.



Grab a new piece of twine. This will eventually attach to the kite. Insert this twine through the top of the bottle. Attach the elastic bands around the camera to the twine and tighten it securely. Connect the other pieces of twine to this piece.

5.

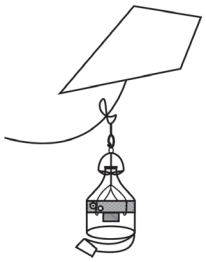


Make a tail out of the remaining bits of bottle and a piece of twine. Attach this tail to the bottle with tape so that it stays straight during flight.

LOOK ON THE BACK FOR STEPS 6 AND 7

CONTINUED...

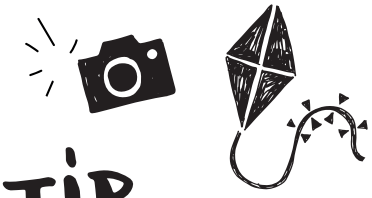
6.



Make a loop with a knot in the kite string and tie your camera device to the kite. Set your camera to continuous mode and you're ready for lift off!

7.

Fly your kite around different places in your area and choose the best pictures to print.

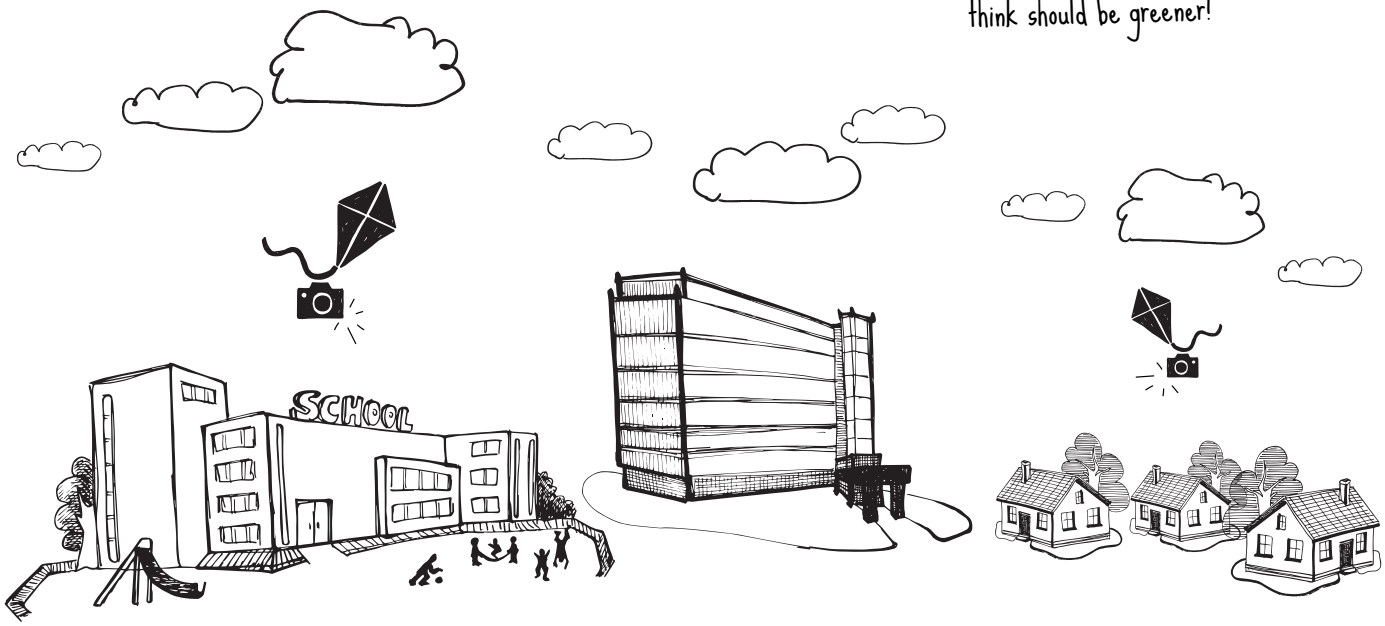


TIP

Put all your aerial photos together & you can create a MAP of your whole neighborhood and see how green (or grey!) it is.

NO WIND? You can, of course, also look for a tall building nearby and ask if you can take pictures from the top floor.

NO KITE? Then walk through your neighborhood and make a nice photo collage of all the greenery or of the places you think should be greener!



SMART KIDS LAB.NL

making meters → experiments

How green is the ?

SMART KIDS LAB
experiments

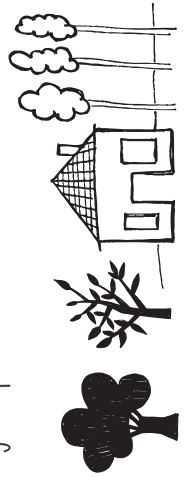
Step 1 Make your GROUND COVER METER and choose a few spots around the neighbourhood to launch your kite and take AERIAL photographs.

Step 2 Choose the best photos that give a good picture of the whole neighbourhood. Print them out and glue them here. Make a nice map!
(Did the photos not work out? Was there not enough wind for the kite? Do you prefer looking at the satellite images on Google Maps? If so, then draw and colour a map of your neighbourhood. Colour the green places green, the water blue, the soil brown, and all buildings and streets grey).

Step 3
Draw a grid (like graph paper) with pencil and ruler over your map with boxes around 1 centimeter.

Step 4
Count how many boxes on your map are covered with green, soil, or water and write the number here: ..... GREEN BOXES
Count also the number with buildings or streets: ..... GREY BOXES

Step 5
Are there more green boxes than grey boxes in your neighbourhood? Or is it not very green at all? Check out the compare-o-meter. Do you want more green in your neighbourhood? Where? MY RESEARCH CONCLUSION:



Step 6
Take a picture of this worksheet & put it on the BIG data map at SMARTKIDSLAB.NL