Lesson three: Why is clean water important?

Part one: Quiz

1. The collective word for water that falls from the sky as rain, snow, sleet or hail is:
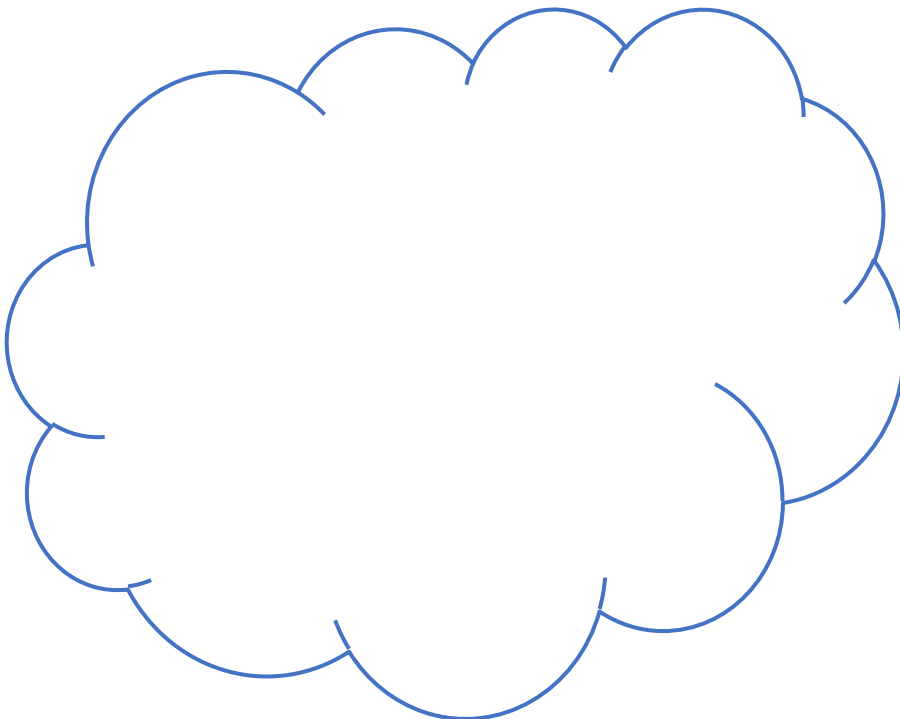a) evaporation
b) run-off
c) precipitation
d) condensation

2. One of the things we could ask the government to do to prevent flooding is

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3. One of the things we could do in our own lives to reduce the risk of flooding is

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Part two: What do you use water for?

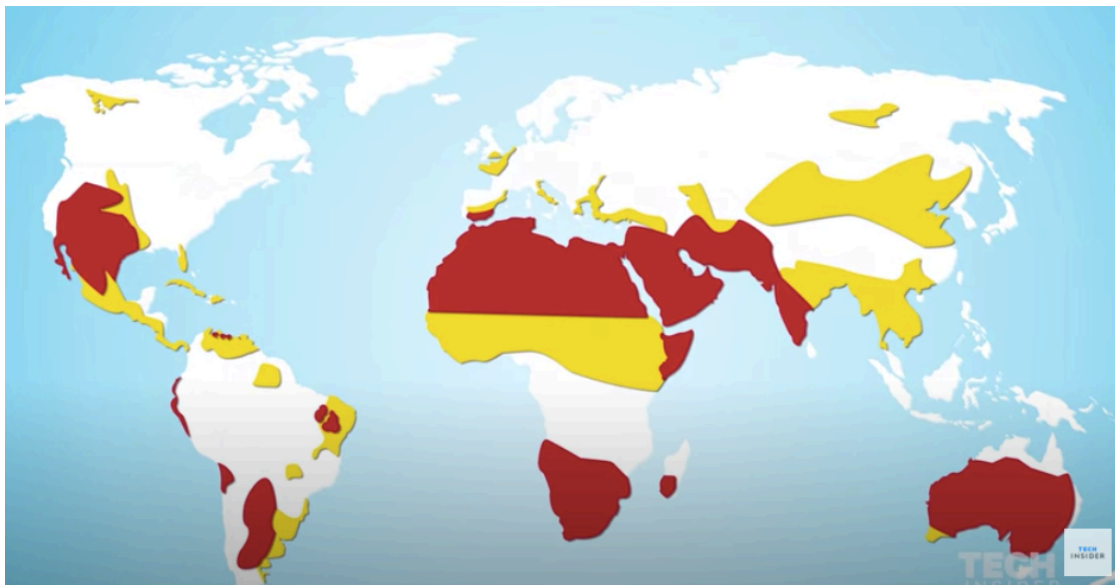List all the different ways you have used water so far today

Part three: water scarcity

To do all of these things, we need clean water. We are lucky to have an abundant supply in this country, and in most of Europe. However, this is not the case for many parts of the world.

This video highlights areas of water scarcity:
https://www.youtube.com/watch?v=2QQszsz0C20

One in three people do not have access to safe drinking water, two out of five people do not have a basic hand-washing facility with soap and water. Many of these people live in countries with high levels of poverty, making it hard for the governments to address the water scarcity challenge.

In 2015, The United Nations set 17 Sustainable development goals for the world:

"**The Sustainable Development Goals are the blueprint to achieve a better and more sustainable future for all. They address the global challenges we face, including those related to poverty, inequality, climate change, environmental degradation, peace and justice. The 17 Goals are all interconnected, and in order to leave no one behind, it is important that we achieve them all by 2030. Click on any specific Goal below to learn more about each issue.**"

6 CLEAN WATER AND SANITATION

ENSURE AVAILABILITY AND SUSTAINABLE MANAGEMENT OF WATER AND SANITATION FOR ALL

785 MILLION PEOPLE REMAIN WITHOUT EVEN **BASIC DRINKING WATER** SERVICES (2017)

2 OUT OF 5 PEOPLE WORLDWIDE **DO NOT HAVE** = A BASIC = HANDWASHING FACILITY WITH SOAP AND WATER AT HOME (2017)

1 OUT OF 4 HEALTH-CARE FACILITIES WORLDWIDE LACK BASIC DRINKING WATER SERVICES (2016)

BY 2030, **700 MILLION** PEOPLE COULD BE DISPLACED BY **INTENSE** WATER SCARCITY

673 MILLION PEOPLE (9% OF THE GLOBAL POPULATION) STILL PRACTISE OPEN DEFECATION (2017)

THE MAJORITY OF THEM ARE IN SOUTHERN ASIA

2 BILLION PEOPLE LIVE IN COUNTRIES EXPERIENCING HIGH WATER STRESS

SUSTAINABLE DEVELOPMENT GOALS

ACCESS MORE DATA AND INFORMATION ON THE INDICATORS AT UNSTATS.UN.ORG/SDGS/REPORT/2019/

Part four: technological solutions

The problem isn't that there isn't enough water in the world. The problem is that 96.5% of the water is in the oceans, which means that it cannot be used for drinking. This is exacerbated by wasteful behaviours with our precious fresh water supplies.

However, hi-tch and low-tech solutions abound. **Desalination** is the process of removing salt from sea water. Salis is the Latin for salt, so desalination literally means "taking salt away from".

Let's have a go at some desalination!

A desalination experiment

Equipment
- large bowl
- mug or small cup
- cling film
- warm **salty** water

Method
1. Place the mug or small cup in the centre of the bowl.
2. Fill the bowl with salty water about 1/3 of the way up the cup (do not put water inside the cup).
3. Cover the bowl with cling film.
4. Place it somewhere warm for a few hours, ideally in direct sunlight
5. After at least three hours, take the cling film off. There should now be some water in the mug or cup (just like in our **water cycle experiment**). Carefully taste it. It should be warm but not salty!