



# Scientific Literacy *(OECD, 1999)*

- ✓ to use scientific knowledge
- ✓ to identify questions & to draw evidence-based conclusions
- ✓ to understand & help make decisions about the natural world & human activity



# Three main dimensions:

- » *Scientific processes*
- » *Scientific concepts*
- » *Application in realistic problems*

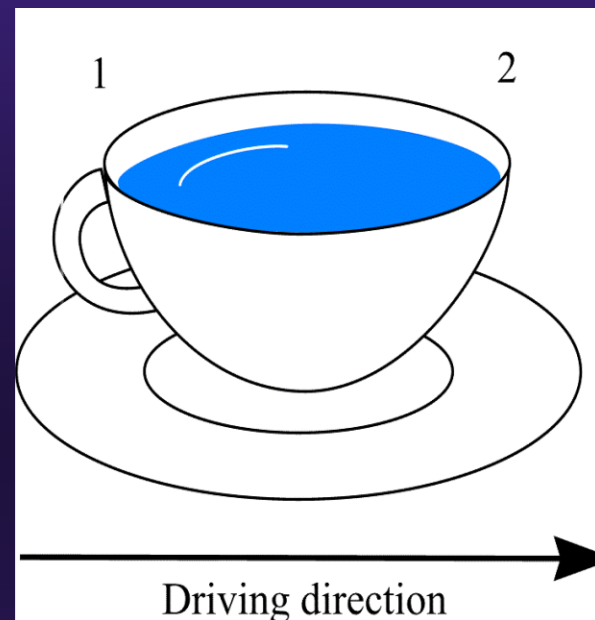


# Sample questions

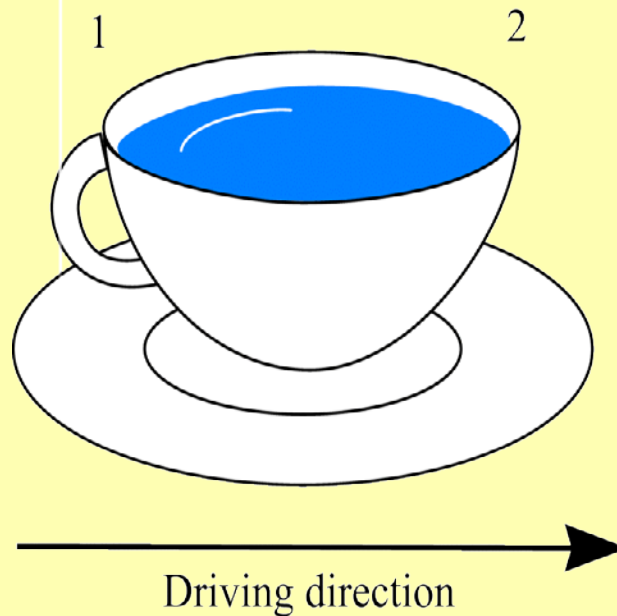
## Example 1

A bus driver (Ray) has a cup of coffee.

Suddenly Ray has to slam on the brakes.



# What will happen to the coffee after Ray slams on the brakes?





Ray's bus is powered by a diesel engine. This leads to air pollution.

Trolley buses are powered by electricity from overhead lines. The electricity is supplied by a power station using coal.

Trolley buses don't cause  
air pollution.

Are these supporters right?



## Example 2

A farmer found that there were many flies in the barn ...

This was repeated five times.

The insecticide was less & less effective.



The insecticide may decompose with age.

- How to test this idea?
- Give 2 alternative explanations.







## Example 3

Jessica has a “chocolate diet”:

90 bars of chocolate a week

+

one “meal” every 5 days.

# Nutrition expert:

- not a balanced diet
- fats give her energy
- but not enough vitamins



Assume that each chocolate bar weighs 100 grams.

Table 1: Nutritional content of 100 g chocolate

Protein	Fat	Carbo- hydrate	Minerals		Vitamins	Total energy
5 g	32 g	51 g	Calcium 50 mg	Iron 4 mg	A B C - 0.2 mg	2142 kJ

100 g of chocolate contain 32 g of fat & give 2142 kJ of energy.

Does all the energy (2142 kJ) come from fat?

Which food can provide vitamin C ?  
fish, fruit, rice or vegetables





# Application of scientific thinking & knowledge to realistic problems

- Problem solving
- Informed decision making
- Life-long learning

