

Project

Post-test : questionnaire for the pupils

Preliminaries

Eratosthenes comes to its end... We hope that your pupils fully enjoyed all these exciting activities that led them to "measure the Earth", with the shadow of a simple vertical staff!

In order to assess the knowledge they have acquired with regard to the first test, this is a post-test using the contents of the pre-test, with two other questions, one about the famous figure discovered by Eratosthenes, and the other about geographical co-ordinates.

Mode

Time : According to the training of your pupils, one 45 minutes session, or two 30 minutes sessions (but the slowest pupils should be able to finish the test after).



Equipment :

For each pupil :

The test forms and a few blank sheets for the drawings ;
pencil, rubber, coloured pencil or felt pen.

PROJECT : “ FOLLOWING IN THE STEPS OF ERATOSTHENES ”

17 questions to take bearings on what you know about a few things *Before you answer a question, read it from the beginning to the end. . When you have to select an answer, surround the chosen answer in black.*

*When you should answer by a **drawing**, draw it on another sheet, on which you will write down the **number** of the question.*

1 – Under the shadow !

Have you already watched the shadows? Draw the shadow of a stick lit by the sun (the stick is stuck in the ground).

Then, do the same for three sticks well away from the others.

2 – Is the black board askew?

Vertical, horizontal : make a drawing that illustrates these two words. Draw a line for the ground ; then, draw a vertical object as if it was laid upon it, and then another one, horizontal.

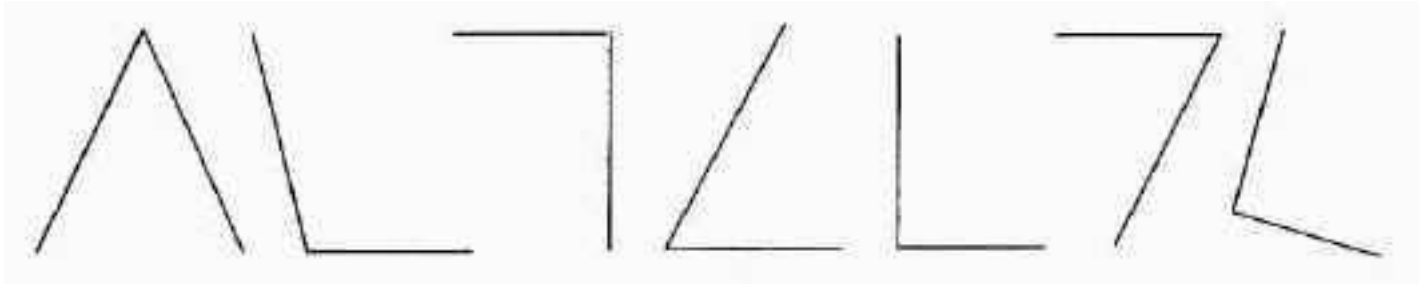
Can you name (and draw?) two tools that could check :

- the verticality of the first object : _____

- the horizontality of the second object : _____

3 – At the angle of my street

Maybe you already know what an angle is, and maybe also a right angle? In the angles below, surround those you think are right angles.



Do you know the name of an angle less "open" than the right angle?

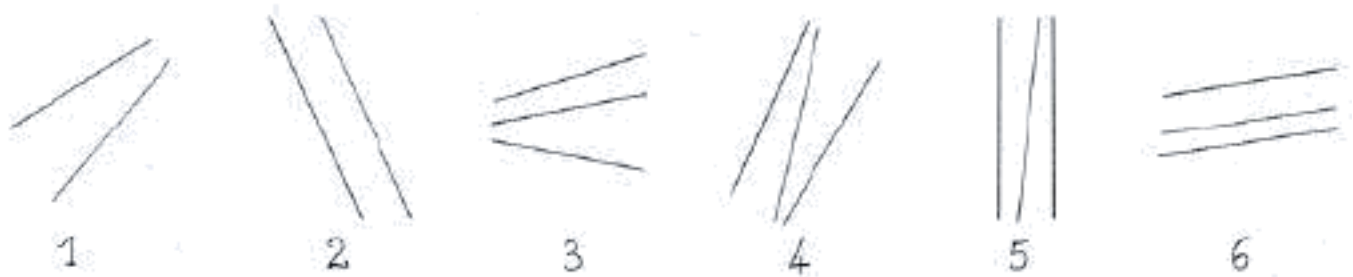
It is an _____ angle

Do you know the tool used to measure an angle?

It is a _____

4 – Let's take a street parallel to your street...

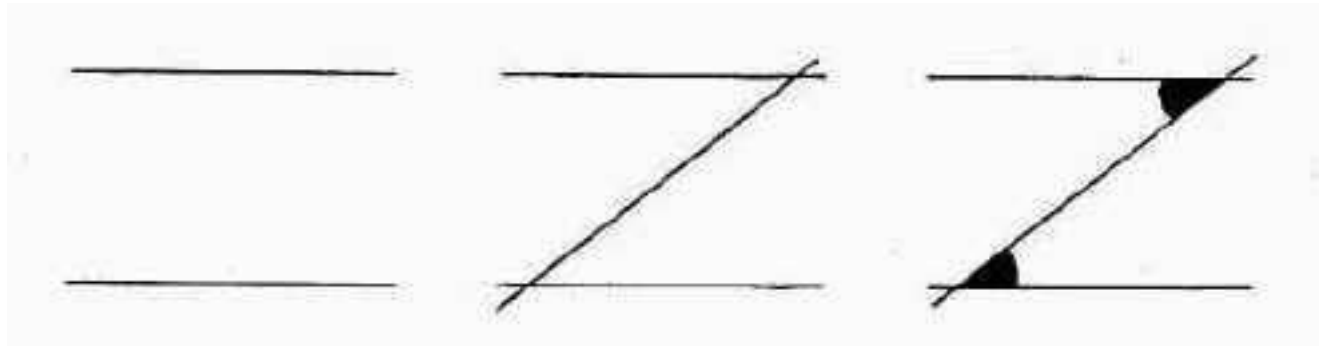
Have you already heard about "parallel lines"? Even if you have not, maybe you can find what a parallel line is in these "groups" of lines :



If you think you have found, surround the "groups" of parallel lines on the drawing

5 – Z like Zorro

Watch the three steps necessary to construct this funny “Z” :



The two angles in black

are special : how ? _____

It could be checked, how ? _____

6 – Hello Earth !

How the Earth is shaped? (draw it on a sheet of paper)

How do you know it

? _____ To what kind of object does it make you think? _____

7 – Other sticks !

Use the drawing of Earth you've just made and add, on the rim, three small sticks stuck on the ground like stakes, but very far away from the others.

8 – The Earth is under the Sun

Draw the Earth as you imagine it from space, with continents for example, but also lit by the Sun. If you want to show that it is night somewhere on the planet, fill this part in black.

9 – Night and day !

Among these four sentences, surround the one (or ones) that explain why there is a night and a day on Earth (you can use more than one answer) :

- 1) The Earth turns around the Sun
- 2) The Sun turns around the Earth
- 3) The Earth spins upon herself
- 4) The Earth spins upon herself and turns around the Sun.

10 – West wind

This is a map of France with a compass card that give you the four cardinal points :

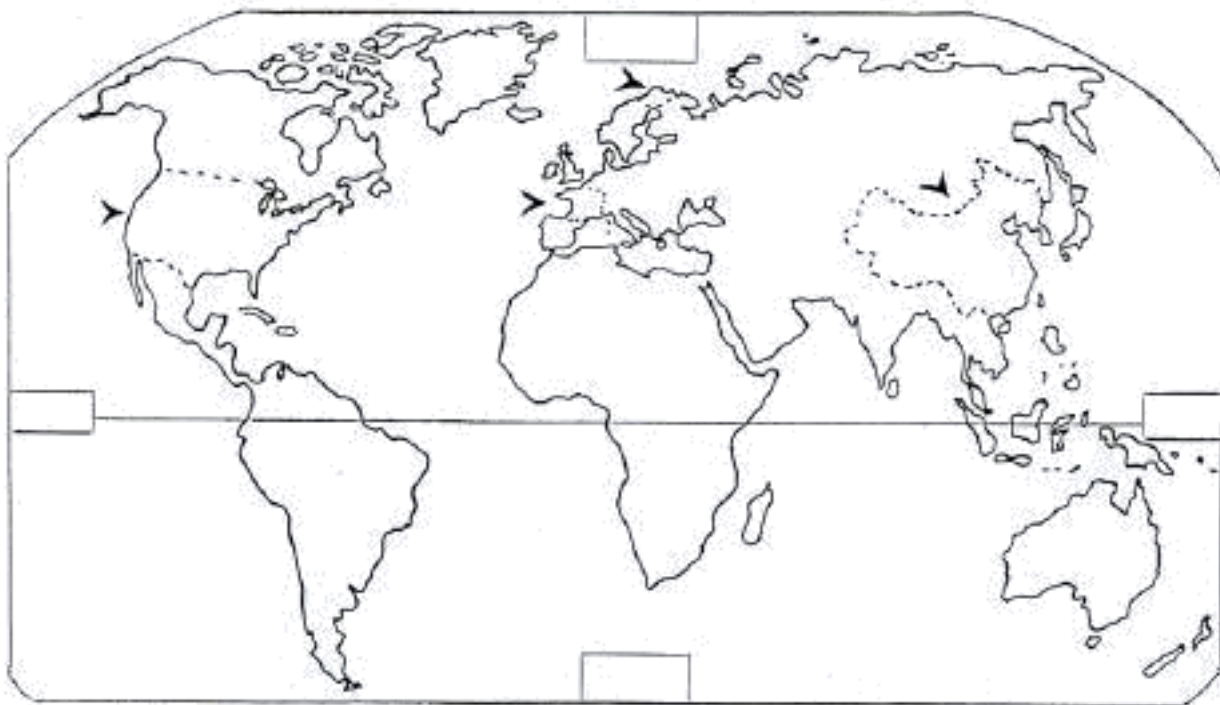
the north (N) the south (S) the east (E) the west (W)



Write down the initial of each cardinal point well on its place at the tip of a point of the compass card. On the map, you can see where is Paris : take a place to the north of it a write north, a place to the south of it and write south, etc.

11 – Travel through the world

This a map showing the five continents : it is a planisphere. Write the four cardinal points in the four small rectangles. Find the United Kingdom, the United States, China, and Lapland, and colour them with a different colour for each.



Do you think the United States are :

- to the west of the United Kingdom

- to the east of the United

Kingdom Do you think France is :

- to the west of China

- to the east of China

12 – Is it time to get up or to go to bed?

If it is nighttime in some countries and daytime in others, it means that time is not the same all around Earth. When English pupils get up in the morning, other pupils in the world are going to bed :

Can you tell who they are ?

Young Americans are going to bed?

Young Chinese are going to bed?

Young Eskimo from Lapland (north of Europe) are going to bed?

13 – And the Sun!

Do you know where you can see the Sun raise?

to the north to the south to the east to the west

Do you know where you can see the Sun set ?

to the north to the south to the east to the west

14 – Face the Sun !

Now, imagine you face the sea (or a plain), with the Sun in front of you, high in the sky. When, in the day, can you see it like that? _____

In which direction can it be at that moment? _____

Draw a line for the horizon, then, in the middle and high, the Sun in the sky.

Draw the course of the Sun from the morning when it rises, to the night when it sets. According to your answers to questions 13 and 14, try to place the four cardinal points. Finally, draw some arrows on the course of the Sun.

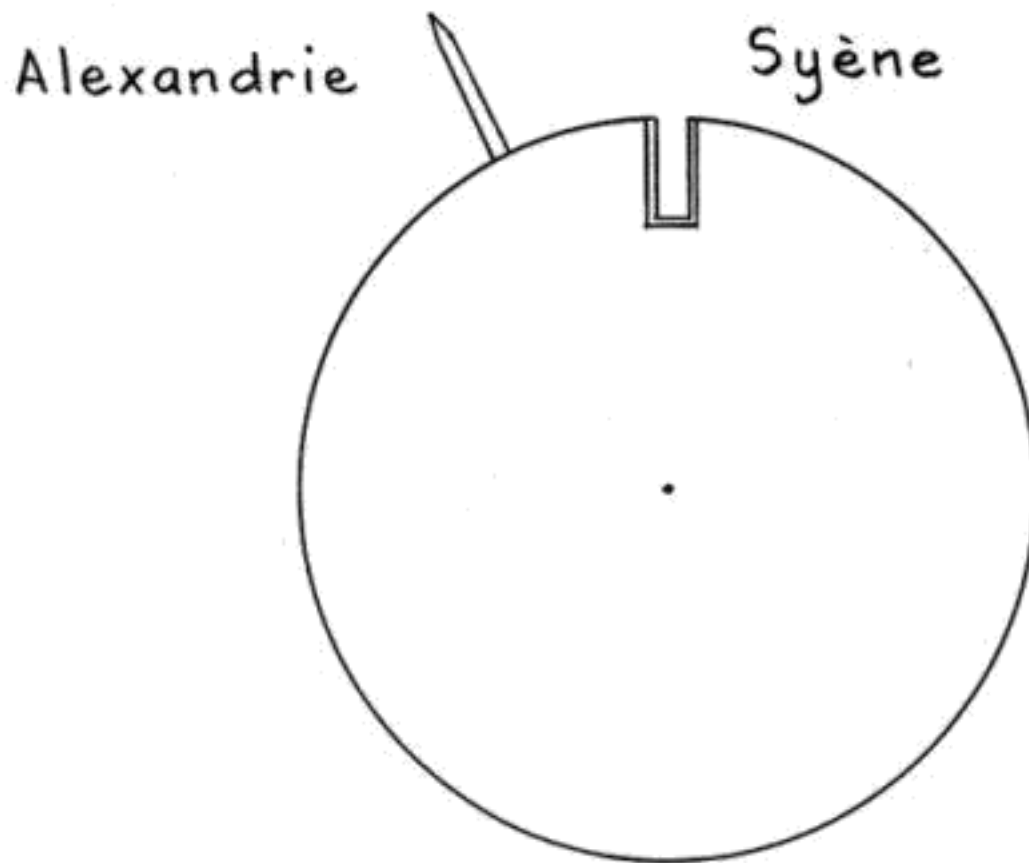
15 – With the passing days, nights and seasons

Do you know why, in France, night is longer in winter than in summer? _____

Do you know why it is cold in winter and hot in summer ? _____

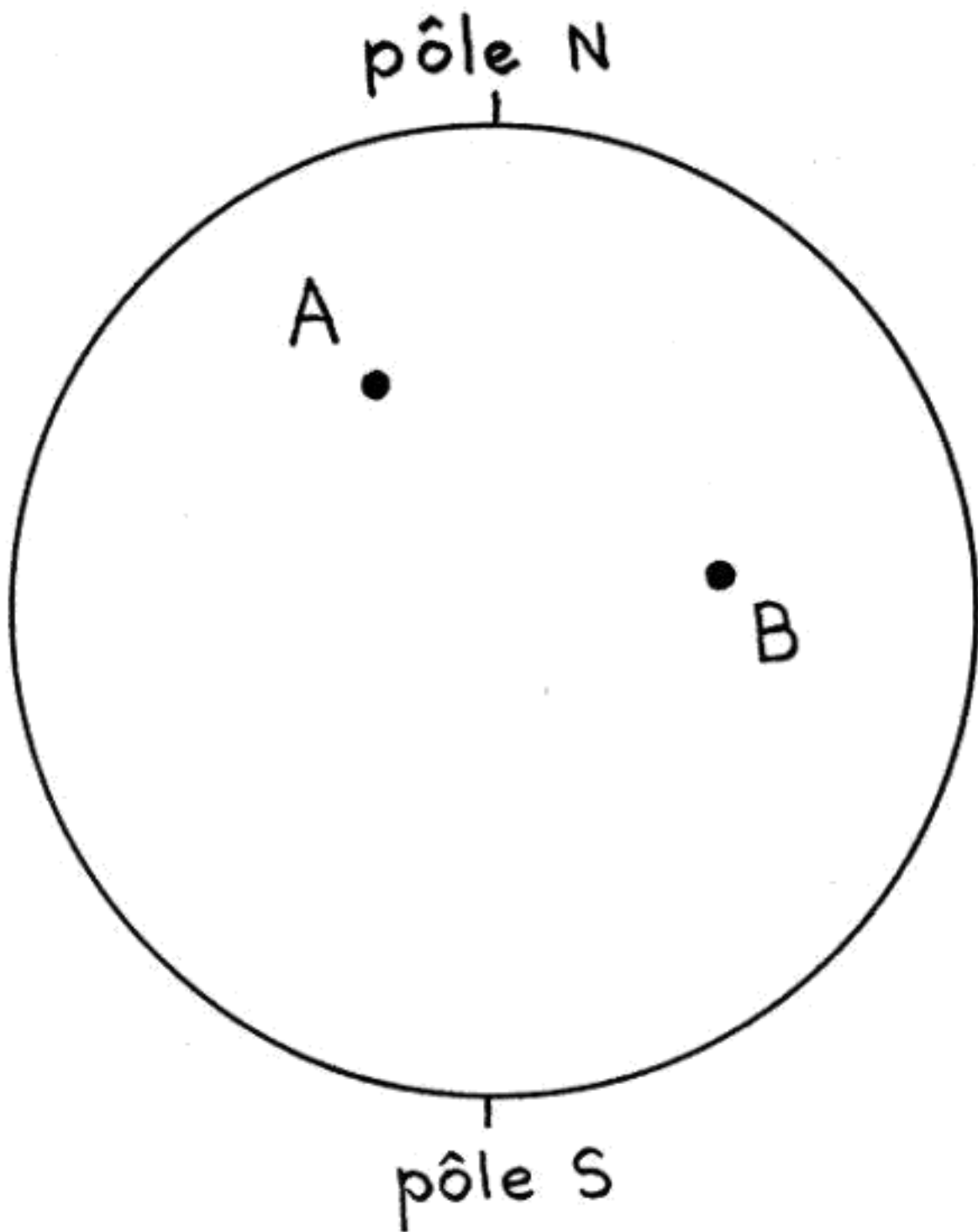
16 - Eratosthenes' great idea

Will you be able to complete the famous figure discovered by Eratosthenes? Add two sunrays to this schema : one of them getting to the bottom of the well, the other on the obelisk, to the ground (and even slightly beyond, with a dotted line). Then, to the centre of the Earth, draw the vertical of Syrene and the one of Alexandria. Finally, color the two equal angles (with the Z of Zorro) with which Eratosthenes measured the meridian.



17 - Meridians et parallels

This is another schema of the globe, with two cities, A and B. Draw the meridian and then the parallel going through the city of A. Do the same for the city of B. Show, with a dotted line, the distance that should be taken -in Eratosthenes' operation- to calculate the length of the meridian.



We wish you a happy end of school year, happy holidays, and see you on the site in next September for brand new scientific adventures with La main à la pâte.
