



Ma maison, ma planète... et moi !

Sequence 1: What habitats for what purposes?

1-1	Draw your ideal housing
1-2	What are the different types of habitat in the world?

Sequence 2: Impact of habitat on the environment

2-1	Unequal access to resources
2-2	The lifecycle of building materials

Sequence 3: Energy Habitat

3-1	What is a thermal insulation?
3-2	What are the insulation used in habitat?
3-3	How to ventilate her housing without harming the insulation?
3-4	How to heat water with the Sun?
3-5	Designing a solar water heater
3-6	Fabricate and test a solar water heater

Sequence 4: Water habitat

4-1	Habitat water
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Sequence 1: What habitats for what purposes?

Objectives of the sequence

- Awareness of the wide variety of shapes, materials and types of habitat in the world, different needs, vital or not, people.
- These habitats are more often but not always, adapted to local climatic conditions and resources.
They find that the France also offers a wide variety of habitats, but only today ' hui is constructed mainly of individual dwellings and concrete.

SESSION 1-1: DRAW YOUR IDEAL HOUSING

Duration	1: 15 pm
Equipment	None
Objectives	<ul style="list-style-type: none">• Define functions of vital and non-vital habitat• Bring out the performances of students on the ideal habitat
Skills	Whether to observe, question, question, discuss, argue its choices about the "ideal" said habitat and its functions
Lexicon	Habitat, housing, individual, collective, House, apartment, building, remains, palaces, optional, comfort, aesthetic

Initial question

Introduce the project, by announcing that the class will continue to work on habitat. Ask students to think, individually, according to them, what would an "ideal" habitat (not pronounce this word to avoid fanciful representations)

Draw on a sheet housing in which you would like to live later. You can accompany your captions and drawing a small writeup describing this housing.

Teaching note

- For the moment, it does not speak ecological Habitat, but short Habitat.
- Do not pronounce the word "maison" to not induce a particular type of habitat (it will be seen that for most students, ideal habitat is a house).
- Legends can clarify what are the materials used, done in different documents...
- With such advice it gets modes of representation very diverse: some children show the Interior of housing, other outside, others still both. sometimes in 3D, often in 2D, etc.

Pooling

Propose some students (5 or 6) to submit their designs to table, read the texts that accompany them and answer the questions of other children. In most cases, "ideal" habitat is a huge, sumptuous, individual

House image villas seen in TV series or magazines. Facilities are of the same type: large swimming pool, sports car, screens géants... Some students, however, highlight use playful and poetic Habitat (House in the trees, under the sea).

Ask if some students have different proposals and, if so, inviting them to submit them to the class. Discussion can focus on the notion of comfort. Is connected, in children, size of housing, to his aesthetic to its equipment to health? The class collectively seek commonalities and differences between these habitats. Then ask each of thinking, individually different habitat functions:

Write on your book, what it actually serves to housing.

New pooling allows to compare proposals from students and find habitat can meet different needs. The class can then classify these needs according to their nature vital or not - can also be said "essential" or "optional" (or "incidental"). If students are struggling to prioritize these different needs, can be guided by the types of questions: what are people without housing? For example:

Vital need	Non-vital need
Protect against cold or heat	Distraction (read, play, watch TV, use the ordinateur...)
Protect from rain, wind	To protect themselves from noise
A place where to sleep	To protect themselves from thieves
Having a place to eat and drink	Communicate (telephone, postal address, Internet...)

Teaching note

- It is interesting to take this discussion to discuss changing needs from history. Some habitat features have not changed (protect themselves from cold, heat, weather), others have disappeared (to protect themselves from predators) or evolved (initially collective habitat both role protection and social ties; today, habitat is often a "bubble" in which each family tries to isolate themselves). Some functions have emerged recently (protection from noise, for example, or contact).
- Well, this discussion can be a first approach to the theme energy (it is back in detail later). What is needed for heating? light? operate the computer? The objective is to realize that it consumes energy in various forms (electricity, gas, wood, fioul...).

Conclusion

Students, guided by the master, develop a collective conclusion then copied on experiments book.

Housing meets different needs, vital (protect from weather, eating, sleeping or not, be entertained, communicate).

The designs and texts describing the ideal accommodation for each child are glued in the book. They will be exploited at the end of the project (evaluation).

SESSION 1-2: WHAT ARE THE DIFFERENT TYPES OF HABITAT IN THE WORLD?

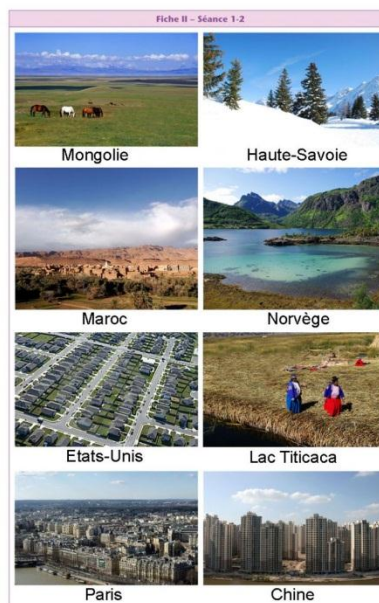
Duration	1 h
Equipment	<ul style="list-style-type: none"> • For each student <ul style="list-style-type: none"> ○ A photocopy of I has <u>Factsheet I and II Factsheet</u> ○ An A3 poster • For the class <ul style="list-style-type: none"> ○ A set of photocopies in color and plastifiées, two sheets ○ An A3 poster ○ A planisphere
Objectives	Become aware of the fact that habitats are different (materials, orientation, architecture) according to the geographical situation (climate, resources locales...)
Skills	<ul style="list-style-type: none"> • Be able to read and describing habitat photos taking into account construction materials • Read a physical map • Information from various documents relate
Lexicon	Habitat, material, climate, landscape, environment, architecture

Initial question

The question *know you like habitat types worldwide?* and ask students to respond on their notebooks. Help them by evoking certain parts of the world (Africa, North Pole, Amérique...).

Literature search

After placing students in small groups, distribute a photocopy of the factsheet I and II Factsheet. The work is to associate types habitats and landscapes, pasting pictures together on a large poster. This requires observation cutting (climate, vegetation, natural resources) landscapes and habitats (materials, architecture...).



Pooling

Each group explains how he associated different images, have a larger version and plastifiée of these images, put them on the planisphere the fur and measurement. Facilitate exchanges of posters:

- When everyone is in agreement, should explain the reasons for this choice.
- In case of disagreement, students argue, supporting documents, and seek a consensus.

Ensure, in particular, to discuss adaptation of each type of habitat to climate, local resources (where come from material?), lifestyle (habitat collectif, Nomad / sédentaire...). Processed materials (concrete, bricks) found no such what in nature: may wonder now, on the resources in their manufacture (know-how, approvisionnement...).

Conclusion, written record

The class develops a collective conclusion noted in notebooks. An example of a conclusion can be:

There are different types of habitats in the world: they are built with different materials with local resources (wood, stone, Earth, concrete, textiles). Habitats have different architectures to meet the needs of men and climatic conditions.

Fiche I – Séance 1-2



Fiche II – Séance 1-2



Sequence 2: Impact of habitat on the environment

Objectives of the sequence

- This sequence enables students to understand why the current context (climate change, depletion of natural resources, population growth) requires that we build otherwise.
- They find that the riches and natural resources (including water) are unevenly distributed on Earth, and that greenhouse gas emissions are related partly to the energy consumed in the habitat.
- Students study the lifecycle of some materials (concrete, Earth, wood) produce a piece of wall using different techniques and realize that if all materials allow solid constructions, some have a much more important than other environmental impact.

SESSION 2-1: UNEQUAL ACCESS TO RESOURCES

Duration	1 h
Equipment	<ul style="list-style-type: none"> • For each student <ul style="list-style-type: none"> ○ A cup ○ Small car ○ A Chair • For the class <ul style="list-style-type: none"> ○ Digital camera (optional) ○ A photocopy of the fiche IV Factsheet IV (for a staff of 25 students) from document PDF suivant following PDF document (for numbers ranging from 23 to 30 pupils). ○ A planisphere ○ A photocopy of the fiche V Factsheet V
Objectives	<ul style="list-style-type: none"> • Awareness of unequal access to natural resources and wealth • Awareness of the need today, to limit our consumption of energy and water
Skills	<ul style="list-style-type: none"> • Formulate a hypothesis and validate • Locate the space a place or geographic set (read and locate on a map) • Use of digital data and pass a representation to another • Approaching the proportionality in a concrete situation • Be able to communicate and work as a team
Lexicon	Contact gases greenhouse, energy, pollution and drinking water

Teaching note

- This session allows to visualize how certain resources between different continents are distributed. With respect to living standards and access to natural resources, find it us relevant to distinguish here between North America (essentially: United States, Canada and Mexico) of South America. Similarly, we regroup here Europe and countries of the former Soviet bloc, included Russia.
- This session uses several calculations of proportionality, such percentages. These calculations can be made by the students, but the session takes so much longer. Sheet IV gives the values calculated for a class of 25 students.
- To facilitate mobility (chairs and students), can be put in a room in the yard or motor.

First step: distribution of population

Initially, telling students that they must be divided by continents (by distinguishing between North America and South America), in accordance with the proportions (number of inhabitants) as they imagine. This distribution can be materialized in space (a table by continent or other).

Then, give the exact distribution of the population, and his correspondence in the class (see table below). A representative from every continent just stick on the planisphere of the class of symbols representing the number of inhabitants (many snowmen as students in the Group). Found these symbols on the V. Factsheet

Continent	Population (million) in 2009	Population (% of the world's population)	Number of students (for a class of 25 students)
Africa	996	15 %	4
North America	451	7 %	2
South America	472	7 %	2
Asia	4 228	62 %	15
Europe	588	9 %	2
Oceania	35	1 %	0

Second step: distribution of wealth

Once the groups "chairs game" is to give each group a number of chairs for the richness of the continent. A continent is rich, he received chairs. Here too, the work is done in two stages:

1. students try to guess how distributed resources;
2. give good figures and correct distribution of chairs. Students realize that some of the continents have too many chairs while others have not enough (example: 1 Chair for Africa, for 4 people against 6 chairs for 2 people in Europe). Then, it is easy to see inequality in the distribution of wealth on Earth.

Continent	Wealth (GDP, billions of \$) in 2004	Wealth (% of global wealth)	Number of chairs (for a class of 25 students)
Africa	2092	4 %	1
North America	13 966	25 %	6
South America	3 111	6 %	1
Asia	21 504	39 %	10
Europe	14 244	26 %	6
Oceania	737	1 %	1

One poster also symbols (euros) on the map.

Step 3: access to drinking water

It performs similarly to access to drinking water, represented by glasses of water (it distributes a number of glasses proportional to each continent, water resources and one poster corresponding symbols on the map). Useful data are listed below:

Continent	Renewable water resources annually (km ³ /year) in 2006	Water drinking (% of global resources)	Number of glasses of water (for a class of 25 students)
Africa	5 723	10 %	3
North America	7 621	14 %	3
South America	17 140	31 %	8
Asia	14 872	27 %	7
Europe	8 071	15 %	3
Oceania	1 670	3 %	1

Fourth step: energy consumption and pollution

Is in the same way for gas emissions greenhouse, represented by small cars.

Introducing the discussion by asking students what human activities which "pollute" (factories, cars, chauffage...) and explain that there is a link between pollution and energy that is consumed. Consumes more energy, more it pollutes. Small cars are here as a symbol of the energy consumption of populations.

Continent	Annual 2006 (millions of tonnes of CO ₂) greenhouse gas emissions	Emissions of greenhouse gases (% of global emissions)	Small cars (for a class of 25 students)
Africa	1 018	4 %	1
North America	7 013	24 %	6
South America	1 027	4 %	1
Asia	12 958	45 %	11
Europe	6 473	22 %	6
Oceania	439	2 %	0

Explain to the class that developed countries consume a lot of energy and thus pollute more than the poorest countries. Fight against global warming, to make an effort to reduce gas emissions greenhouse. This, to consume less energy.

Discussion and conclusion

Planisphere synthetic shows how divide populations, resources, access to water and greenhouse gas emissions. Explain the population increases faster in poor countries, which will increase already observed inequality.

Conclusion: we note that the riches and drinking water are not distributed equitably. By 2050 we will be 9 billion people. For each live better, we must consume less energy and less water.

Fiche IV – Séance 2-1

Continent	Population (en millions d'habitants) en 2009	Population (% de la population mondiale)	Nombre d'élèves (pour une classe de 25 élèves)
Afrique	996	15 %	4
Amérique du Nord	451	7 %	2
Amérique du Sud	472	7 %	2
Asie	4 228	62 %	15
Europe	588	9 %	2
Océanie	35	1 %	0

Source : <http://www.statistiques-mondiales.com>

Continent	Richesse (PIB, milliards de \$) en 2004	Richesse (% des richesses mondiales)	Nombre de chaises (pour une classe de 25 élèves)
Afrique	2 092	4 %	1
Amérique du Nord	13 966	25 %	6
Amérique du Sud	3 111	6 %	1
Asie	21 504	39 %	10
Europe	14 244	26 %	6
Océanie	737	1 %	1

Source : CIA (The World Factbook 2005)

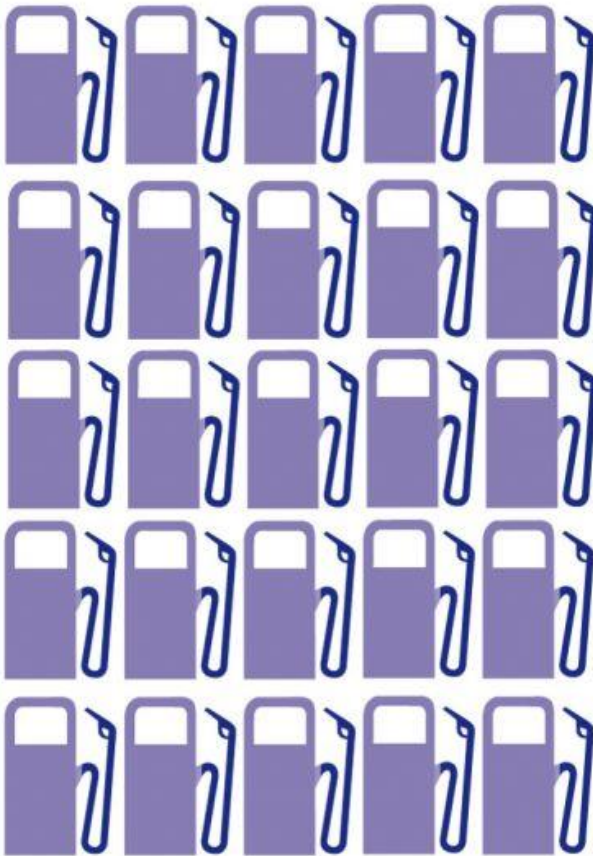
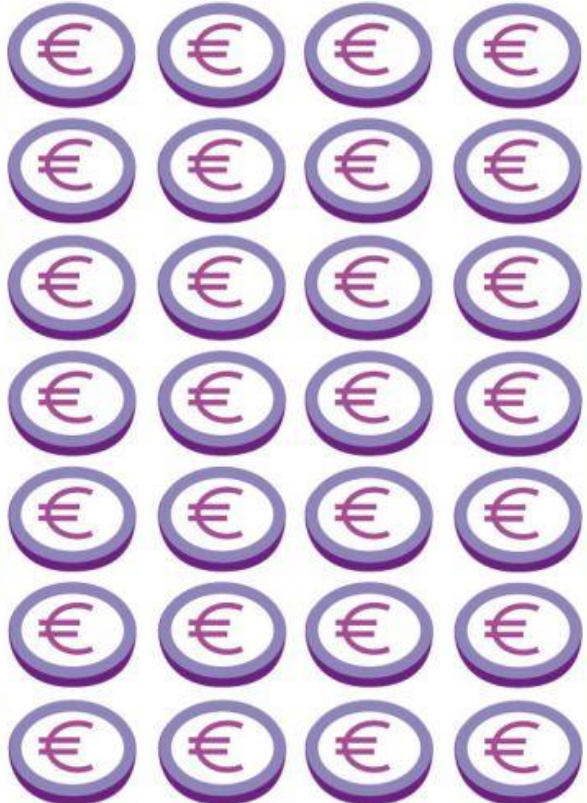
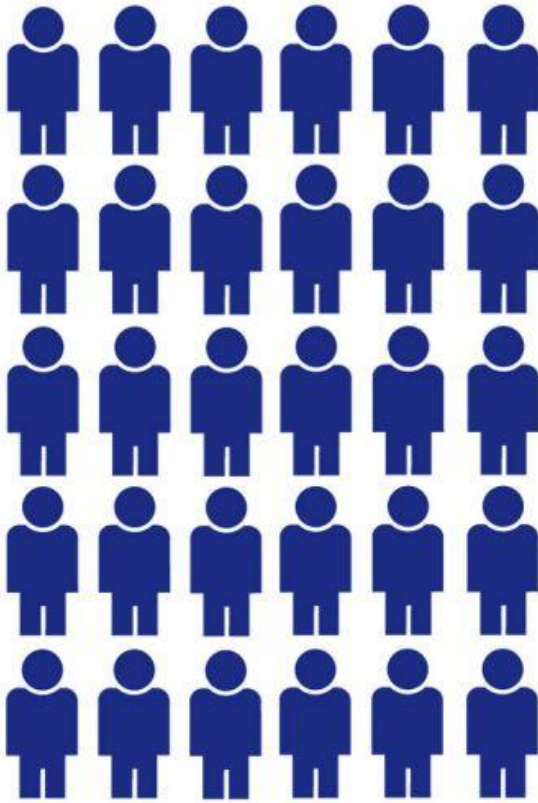
Continent	Ressources en eau potable renouvelable chaque année (km ³ /an) en 2006	Ressources en eau (% des ressources mondiales)	Nombre de verres d'eau (pour une classe de 25 élèves)
Afrique	5 723	10 %	3
Amérique du Nord	7 621	14 %	3
Amérique du Sud	17 140	31 %	8
Asie	14 872	27 %	7
Europe	8 071	15 %	3
Océanie	1 670	3 %	1

Source : Pacific Institute (World's Water Project)

Continent	Émissions annuelles de gaz à effet de serre (millions de tonnes de CO ₂) en 2006	Émissions de gaz à effet de serre (% des émissions mondiales)	Petites voitures (pour une classe de 25 élèves)
Afrique	1 018	4 %	1
Amérique du Nord	7 013	24 %	6
Amérique du Sud	1 027	4 %	1
Asie	12 958	45 %	11
Europe	6 473	22 %	6
Océanie	439	2 %	0

Source : ONU (Millennium Development Goals Indicators Database)

Fiche V – Séance 2-1



SESSION 2-2: THE LIFECYCLE OF BUILDING MATERIALS