

## Dossier de préparation de la passation des grades supérieurs L'Agent de liaison linguistique

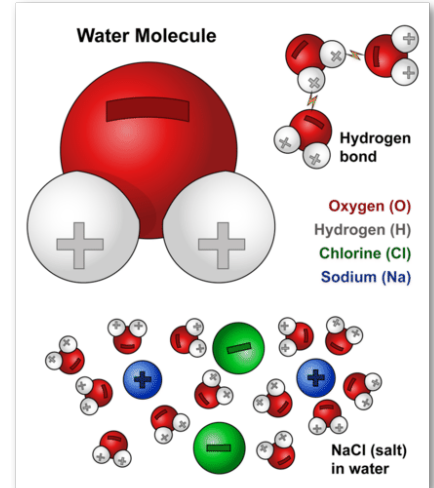
Les tests FACULTATIFS seront à rendre, au cours de l'année, en respectant les consignes suivantes : Mettre son nom, son prénom, sa classe et le grade passé en haut à droite de la feuille. Ne pas recopier les consignes. Ecrire juste les réponses. Un test ne respectant pas ces consignes ne sera pas corrigé.

### Cours de grade 2 : Molecules, the world's tiny bricks

Everything around us, from clouds to your phone, is made of tiny, invisible bricks called molecules. They are themselves made up of atoms. Water, for example, is a molecule of two hydrogen atoms and one oxygen atom ( $H_2O$ ). Chemistry is the study of how these bricks come together and change.

Vocabulaire :

- Everything : Tout
- Around us : Autour de nous
- Clouds : Nuages
- Tiny : Minuscule(s)
- Themselves : Eux-mêmes / Elles-mêmes
- Of how : Comment
- Together : Ensemble
- Change : Changer / Se transformer



### Test pour l'obtention du grade 2

#### Exercise 1: Match the word to its example from the text!

Match each vocabulary word to the specific example that corresponds to it in our text.

- |              |  |
|--------------|--|
| 1) Molecule  | a. Hydrogen and Oxygen.                              |
| 2) Atom      | b. Water ( $H_2O$ ).                                 |
| 3) Chemistry | c. The study of how bricks come together and change. |

#### Exercise 2: Fill in the blank with the correct word!

Read each sentence and choose the correct word to fill in the blank from the given options.

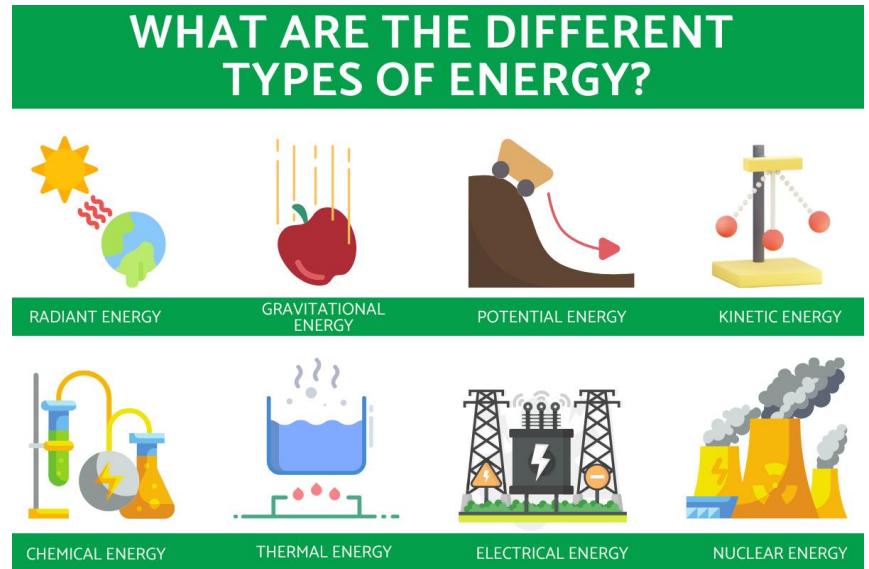
1. Whether it's a tree or a star, everything in the universe is built from these tiny, invisible basic bricks called \_\_\_\_\_. (atoms / molecules / clouds)
2. Every \_\_\_\_\_ is a kind of assembly of several \_\_\_\_\_, a bit like a Lego made of several small pieces. (atom, molecules, cloud, tiny)
3. You study \_\_\_\_\_ if you want to understand how substances transform, like when iron rusts or yeast makes bread rise. (Physics / Chemistry / Biology)
4. Oxygen and hydrogen are types of \_\_\_\_\_; together, they can form a \_\_\_\_\_ that is very important for life. (atom, molecules, everything, how)

## Cours de grade 3 : Energy, the Universe's super-fuel

Energy, the universe's super-fuel, allows everything to move and function. It never disappears; it transforms! We find it in several main forms: kinetic energy (linked to movement, like a car), potential energy (stored, like a ball held high), thermal energy (heat), light energy (sunlight), electrical energy (what powers your devices), chemical energy (in food or batteries), and nuclear energy (at the heart of atoms). These forms constantly convert, allowing the world to function.

Vocabulaire:

- Power: Énergie
- Super-fuel: Super-carburant
- Allows: Permet
- Everything: Tout
- Move: Bouger
- Function: Fonctionner
- Disappears: Disparaît
- Transforms: Se transforme
- Several: Plusieurs
- Kinetic: Cinétique
- Potential: Potentielle
- Held: Tenue
- Thermal: Thermique
- Light: Lumineuse
- Electrical: Electrique
- Devices: Appareils
- Chemical: Chimique
- Nuclear: Nucléaire
- Convert: Se convertissent



### Test pour l'obtention du grade 3

#### Exercise 1: Who am I?

Match each word to its correct explanation.

1. Kinetic energy
  2. Potential energy
  3. Thermal energy
  4. Electrical energy
  5. Chemical energy
  6. Nuclear energy
- a. This is the energy of heat.
  - b. This is the energy of things that move.
  - c. This is the energy hidden in batteries or food.
  - d. This is the very strong energy at the center of atoms.
  - e. This is the energy that makes machines work.
  - f. It's the energy of an object high up.

#### Exercise 2: True or false?

Say if the sentences are true or false.

1. Energy always disappears after use.
2. Sunlight is light energy.
3. A car stopped high up has kinetic energy.
4. Energy forms cannot transform.
5. Eating gives chemical energy.

## Cours de grade 4 : Forces and motion, Newton and the apple

A long time ago, Isaac Newton understood that forces are needed to make things move. If you push a cart, you apply a force. If the cart doesn't move, it means another force is opposing it, like friction. This is the basis of mechanics, which explains how objects move. And guess what? Your own weight is also a force! It's the force of gravity that pulls you toward the center of the Earth. When you jump, it's this force that always brings you back to the ground. It's what gives all objects their weight.

### Vocabulary:

- Needed: Nécessaires
- Move: Bouger / Se déplacer
- Cart: Chariot
- Friction: Frottement
- Guess: Devine
- Own: Propre
- Weight: Poids
- Pulls: Tire
- Toward: Vers
- Jump: Sautes
- Always: Toujours
- Ground: Sol
- Brings you back: Te ramène

### Isaac Newton (1642-1727)



Isaac Newton (1642-1727) was an English mathematician, physicist, and astronomer who is widely regarded as one of the most influential scientists in history. He developed the laws of motion and universal gravitation, laying the groundwork for modern physics.

### Test pour l'obtention du grade 4

#### Exercise 1: Who pushes what?

Match each action or situation to the force that describes it.

1. You push a cart.
  2. A cart does not move on a rough floor.
  3. An apple falls from a tree.
  4. Your own weight.
- a. The force of friction.
  - b. The force of gravity.
  - c. A force you apply.
  - d. A force that pulls you toward the ground.

#### Exercise 2: True or false?

Say if the following sentences are true or false.

1. Forces are always needed to make things move.
2. An object's weight is not a force.
3. The force of gravity pulls us toward the sky.
4. Mechanics explains how objects move.
5. If an object does not move when pushed, it means a force is opposing it.

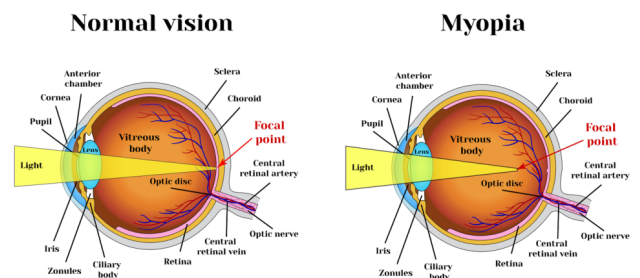
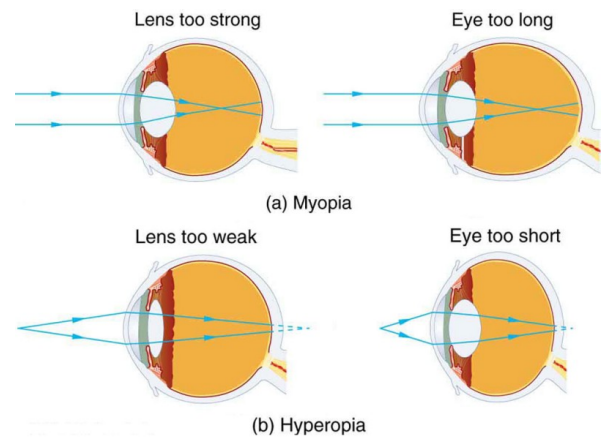
## Cours de grade 5: Your eye, super cool cameras

Imagine your eyes are like super cool cameras. For the picture to be clear, the light coming from what you're looking at (the object) must focus right on your eye's sensor, the retina. This perfect spot where everything meets is the focal point. When all goes well, light rays leave the object, go through your eye's lens, and meet at the right image focal point on the retina, and boom, you see clearly!

But sometimes, this focal point shifts a bit. If you're nearsighted (myopic), the focal point is too far forward, so distant objects are blurry; we use a diverging lens that spreads the rays a bit to make them move back exactly where they should be. If you're farsighted (hyperopic), the focal point is too far back, and close objects are blurry; we use a converging lens that brings the rays closer to move them forward. In the end, glasses are just like super coaches that help your eye's light always reach the ideal focal point, so you get top-notch vision!

### Vocabulaire :

- Object: Objet
- Retina: Rétine
- Spot: Point précis
- Focal point: Foyer
- Rays: Rayons
- Lens: Lentille
- Image focal point: Foyer image
- Boom: Et hop / Et voilà (exprime un résultat rapide et clair)
- Shifts a bit: Se décale un peu
- Nearsighted (myopic): Myope
- Far forward: Trop en avant
- Blurry: Flou
- Diverging lens: Lentille divergente
- Spreads: Écarte
- Bit: Petit peu
- Should be: Devrait être
- Farsighted (hyperopic): Hypermétrope
- Converging lens: Lentille convergente
- Top-notch: Au top / D'excellente qualité



## Test pour l'obtention du grade 5

### Exercise:

Read the text and answer the following questions in French.

- 1) What parts of the eye correspond to the camera elements mentioned in the text?
- 2) If a person sees very distant objects blurrily, but sees close objects well, what is their pathology?
- 3) Describe the precise role of a diverging lens in correcting vision problems.
- 4) The text mentions that the "focal point" "shifts a bit." What does this mean for the formation of the image on the retina?
- 5) If a person has "top-notch vision," what does that imply regarding the position of the image focal point on their retina?

## Cours de grade 6: Stoichiometry, the chemist's perfect recipe

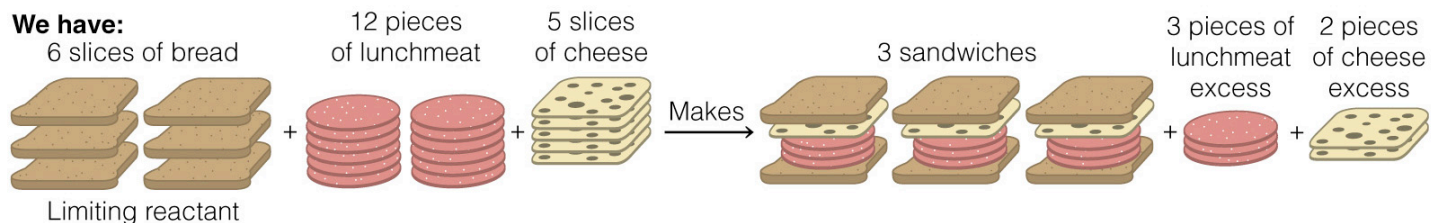
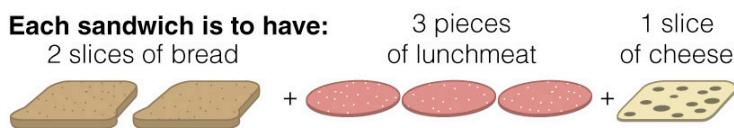
Imagine stoichiometry is the perfect recipe for a chemical reaction, where every "ingredient" (or reactant) is used without waste! It's like making sandwiches where, for each sandwich, you need exactly two slices of bread (Pa), one slice of ham (Ha), and one slice of cheese (Ch).

The "recipe" would be:  $2 \text{ Pa} + 1 \text{ Ha} + 1 \text{ Ch} \rightarrow 1 \text{ Sandwich}$ .

If you have 10 slices of bread, but only 4 slices of ham and 4 slices of cheese:

- With 10 slices of bread, you can make  $10 / 2 = 5$  sandwiches.
- With 4 slices of ham, you can make  $4 / 1 = 4$  sandwiches.
- With 4 slices of cheese, you can make  $4 / 1 = 4$  sandwiches.

You'll only be able to make 4 sandwiches (products). The ham and cheese are your limiting reactants because they "limit" the number of sandwiches you can make, even if you have more bread. The bread is then in excess. An ideal stoichiometric mixture is when you have the exact right amounts of each reactant so that everything turns into products (your sandwiches!) with no leftovers, ensuring a "perfect" reaction where nothing is wasted. This is the chemist's goal for optimizing production.



Vocabulaire :

- Stoichiometry: Stœchiométrie
- Waste: Gaspillage / Gâchis
- Reactant: Réactif
- Slices: Tranches
- Ham: Jambon
- Amounts: Quantités
- Products: Produits
- Limiting reactants: Réactifs limitants
- Excess: Excès
- Stoichiometric mixture: Mélange stœchiométrique
- Leftovers: Restes
- Ensuring: Assurant / Garantissant

### Test pour l'obtention du grade 6

Clara's Cake

Clara wants to bake a birthday cake. She knows her recipe requires very precise quantities for the chemical reaction of baking to transform everything into delicious cakes.

For her cake recipe, she needs:

- 200 grams of flour
- 100 grams of sugar
- 3 eggs.

Clara has in her cupboard:

- 400 grams of flour
- 100 grams of sugar
- 6 eggs

Answer the questions in English. How many cakes can Clara bake? Who is the limiting reactant and why?

