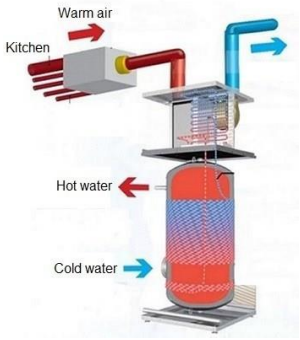
Nom: **Date:**

HVAC Learning.com

Exercise Booklet

Print this exercise booklet before studying the lesson on-line. It will enable you to write your answers to the HVAC learning exercises. You will thus be able to switch between reading or listening to the file on-line and writing in the booklet.



HEAT PUMPS – PART 2

English lesson
https://hvac-learning.com/renewable-energy/heat-pump-training/heat-pumps-part-2/

French version:
https://formation.xpair.com/cours/pompes-chaleur-partie-2.htm

For each exercise, you will write your answer, then you will study its correction on-line before going to the next exercise.
If you cannot do an exercise, you will be able to study its correction directly, but ***force yourself to write your answer*** *as often as possible.*

Note that between 2 exercises, you will find it necessary to study the course. As a warning, in the booklet, you will sometimes find the following indication:

- *"* ***Study the course on-line before doing the next exercise****" or*
- *"* ***Study the course on-line before going to the next paragraph****"*

Only study the paragraphs or the exercises which have an equal or a lower level than the one your training requires.
NVQ Level = Vocational Certificate
A Level = High school Diploma
HND Level = Associate's Degree
MSC Level = Engineering Schools

Then, when you have completed a file, you will be able to assess your level on-line through a Multiple Choice Questionnaire in which you will only answer the questions related to the themes you have studied.
So now off you go and work well!
Good luck!
The Authors.

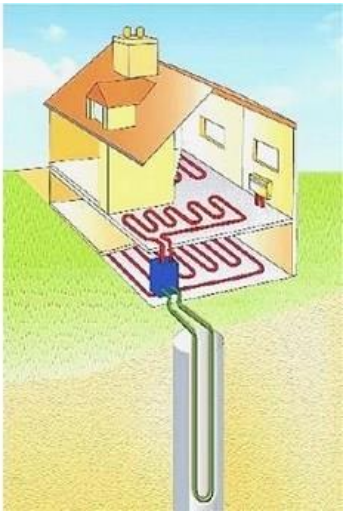
N°1 – The main types of heat pump training – A level

Study the course on-line.

HP Type	Heat source medium	Release medium
Air/Air HP	Air (for example exterior)	Air (for example interior)
Air/Water HP	Air (for example exterior)	Water (for example hot water heating)
Water/Air HP	Water (for example water table)	Air (for example interior)
Water/Water HP	Water (for example water table)	Water (for example hot water heating)
Ground/Air HP	Ground (for example garden)	Air (for example interior)
Ground/Water HP	Ground (for example garden)	Water (for example hot water heating)

N°2 – Vertical collectors and water table draw off training – A level

Study the course on-line.



N°3 – Summarizing animation training – A level

Study the course on-line before treating the next exercise.

Question 1

Having watched the above video, complete the table.

Classify the 4 heat sources in the film, from the most stable to the least stable, in terms of temperature.	1: 2: 3: 4:
Classify the 4 heat sources in the film, from the most available to the rarest.	1: 2: 3: 4:
Class the 4 heat sources in the film, from that requiring the most investment to that requiring the least.	1: 2: 3: 4:
Class the 3 types of emitters in the film, from the most compatible to the least compatible with an air-water or water-water heat pump.	1: 2: 3:

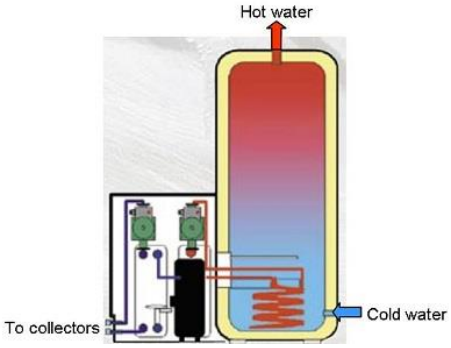
Question 2

Having watched the above video, complete the table.

Classify the 3 types of emitters in the film, from the least costly to the most costly in terms of purchase & installation	1: 2: 3:
Among the proposed emitters, which of them offer a cooling mode function?	
Why are radiators not capable of operating in cooling mode?	
Among those emitters with a reversible function, which one has only a limited cooling capacity? Why?	

N°4 – Heat pumps in DHW production training – A level

Study the course on-line before treating the next exercise.



Question 1

What do we call the above heat pump? (air ext / water HP, etc?)

Study the course on-line before treating the next exercise.

Question 2

What do we call the above heat pump? (air ext – water HP, etc?)

Study the course on-line before treating the next exercise.

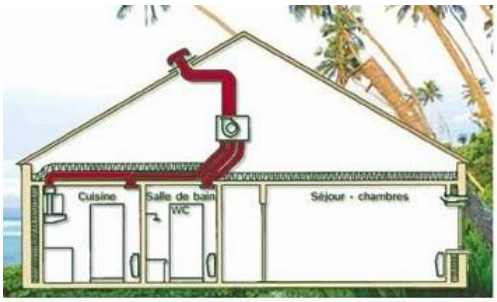
Question 3

What do we call the above heat pump? (air ext – water HP, etc?)

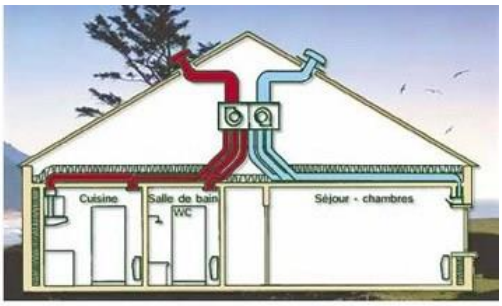
Study the course on-line before treating the next paragraph.

N°5 – Heat pumps on extracted air training – A level

Study the course on-line.



Controlled mechanical ventilation (CMV)
Single flow

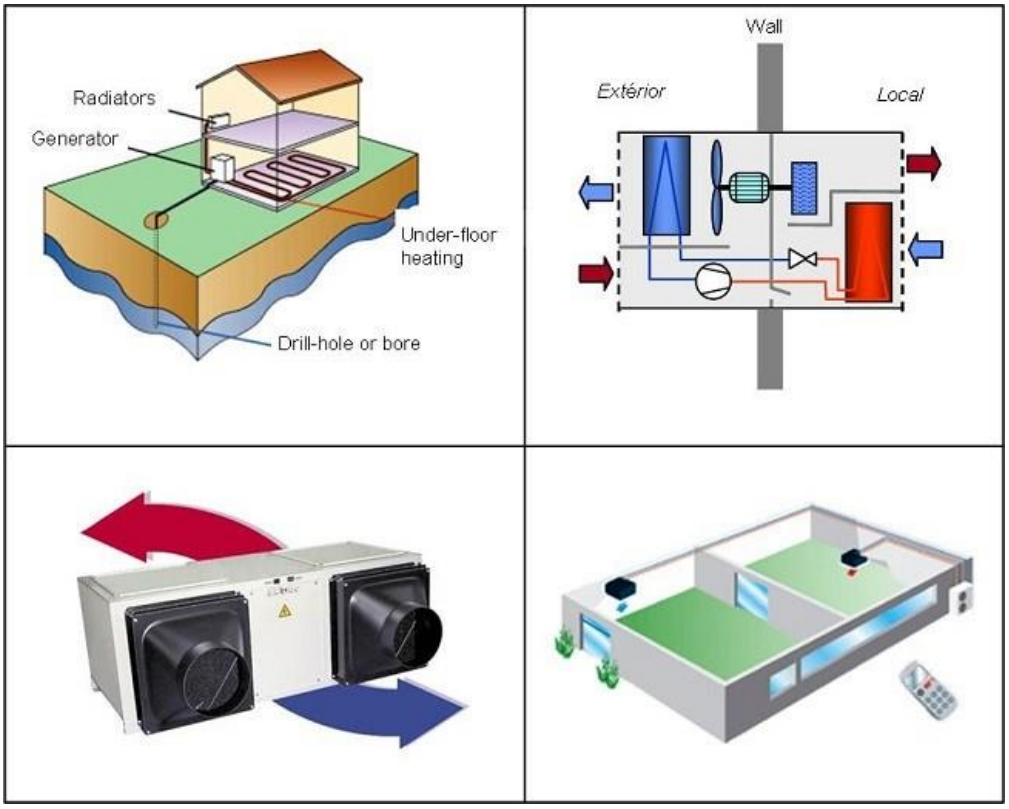


Controlled mechanical ventilation (CMV)
Dual flow

N°6 – Summarizing exercises training – A level

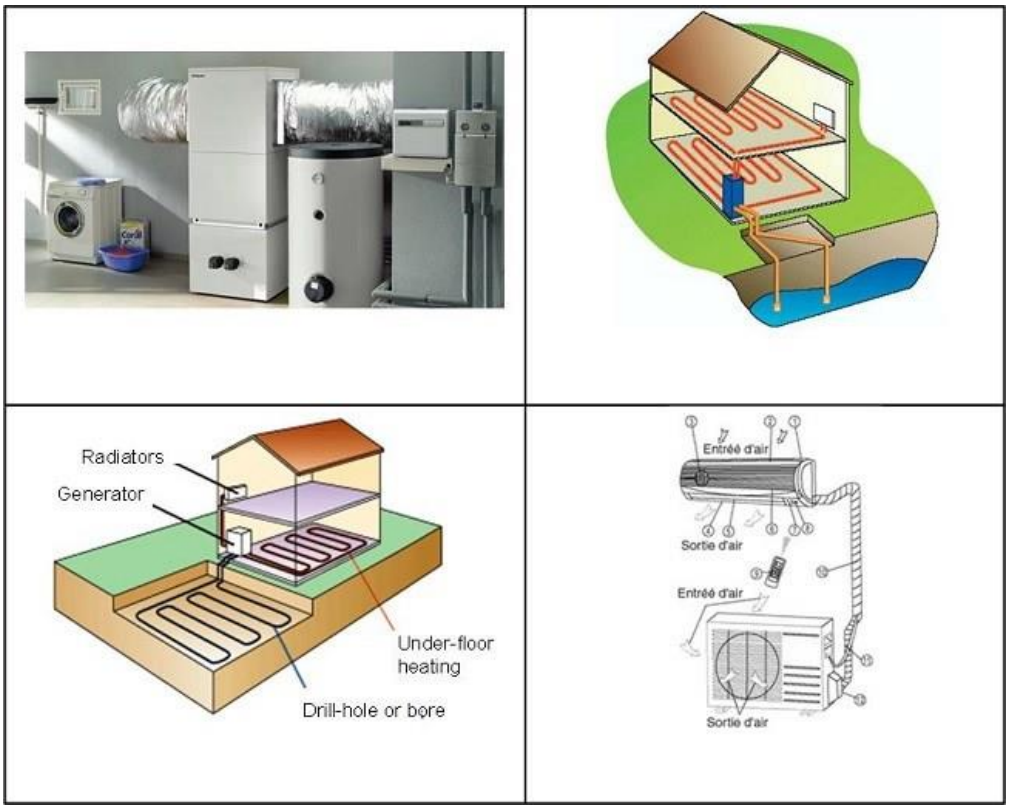
Question 1

Name the different types of heat pump.



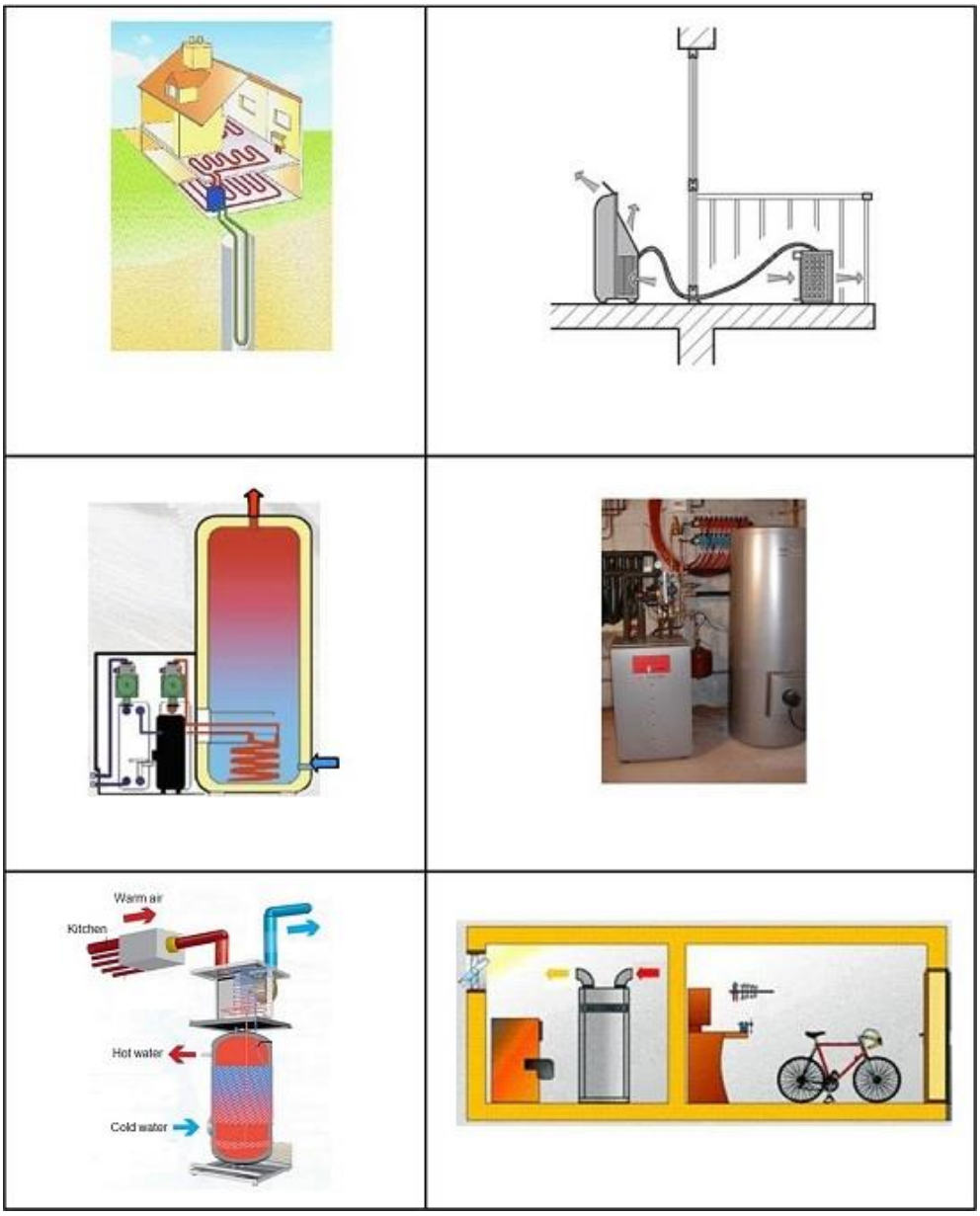
Question 2

Name the different types of heat pump.



Question 3

Name the different types of heat pump.



Question 4

Class the 4 HP below, from the best energy performance to the worst performance (COP), and explain your classification.

– A: Horizontal collector HP
– B: Water table HP
– C: Outside air HP
– D: Vertical collector HP

Question 5

Class the 4 HP below, from the best energy performance to the worst performance (COP), and explain your classification.

– A: DHW production HP
– B: Under-floor heating HP
– C: Low temperature radiator HP
– D: Swimming pool HP

Study the course on-line before treating the next exercise.

English lesson
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