HVAC & R Assignment for E-class Day 1

📝 Lesson 1: What Does HVAC/R Do?

Learning Goal:
Describe the purpose of HVAC/R systems and identify their major parts.

Instructions (for students):
On lined paper, complete the following tasks:

1. **Define** what HVAC/R stands for and explain, in your own words, what each part does (Heating, Ventilation, Air Conditioning, Refrigeration).
2. **List** five places where HVAC or refrigeration systems are used (e.g., grocery store, car, etc.).
3. **Describe** the job of each of the following components:
    a. Compressor
    b. Condenser
    c. Evaporator
    d. Thermostat
    e. Fan or blower
4. **Write a paragraph** (at least 5 sentences) explaining why HVAC/R systems are important in everyday life.

Please be neat and organized in your approach to this assignment, it is due within 3 days of returning to school.

Reach out to me on teams if you have any questions.

HVAC & R Assignment for E-class Day 2

Lesson 2: How the Refrigeration Cycle Works

Learning Goal:
Explain the basic four-step refrigeration cycle.

Instructions (for students):
On lined paper, complete the following tasks:

1. **Write the four main steps** of the refrigeration cycle in order. (Hint: Evaporation, Compression, Condensation, Expansion.)
2. **For each step**, describe what happens to the refrigerant (Does it absorb or release heat? Is it under high or low pressure?).
3. **Describe** what happens if one of these steps fails. Choose one step (your choice) and explain what could go wrong in the system.
4. **Write a paragraph** about how the refrigeration cycle helps keep food cold or a room comfortable.

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HVAC & R Assignment for E-class Day 3

Lesson 3: Electricity in HVAC/R

Learning Goal:
Understand basic electricity concepts used in HVAC/R systems.

Instructions (for students):
On lined paper, complete the following tasks:

1. **Define** the following terms in your own words:
    a. Voltage
    b. Current
    c. Resistance
    d. Ohm's Law
2. **Explain** what happens in a simple electrical circuit.
3. **Write and solve** these problems:
    a. If voltage is 12V and resistance is 4 ohms, what is the current?
    b. If current is 3 amps and resistance is 10 ohms, what is the voltage?
4. **List** five electrical components found in HVAC systems and write what each one does (examples: capacitor, relay, contactor, transformer, switch).

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HVAC & R Assignment for E-class Day 4

📘 Lesson 4: Refrigerants and Environmental Safety

Learning Goal:
Compare types of refrigerants and understand their environmental impact.

Instructions (for students):
On lined paper, complete the following tasks:

1. **Explain** what refrigerant is and what it does in an HVAC system.
2. **Write the names** of two refrigerants you've heard of (example: R-22, R-410A).
3. **Describe** why some refrigerants are being phased out (hint: ozone layer, climate).
4. **Write a short story** (about 5–6 sentences) from the point of view of a technician explaining to a customer why refrigerant handling rules are important.
5. **Answer:** Why is it illegal to vent refrigerant into the air?

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HVAC & R Assignment for E-class Day 5

Lesson 5: Troubleshooting and Maintenance

Learning Goal:
Explain how to prevent problems in HVAC/R systems and how to diagnose them when they happen.

Instructions (for students):
On lined paper, complete the following tasks:

1. **List five preventive maintenance tasks** a technician should do regularly (example: check filters, inspect wiring).
2. **Describe a situation** where an HVAC unit isn't cooling properly. Write what the technician should check first, second, and third.
3. **Write a step-by-step guide** (5 steps) for how to troubleshoot a system that isn't turning on.
4. **Explain** in a paragraph why maintenance can save customers time and money.

Please be neat and organized in your approach to this assignment, it is due within 3 days of returning to school.

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