**The Way Science Works** (p. 14 – 21)

**I. Science Skills**

**1. Define the term critical thinking.**

Critical Thinking –

**2. What are three things that you have put critical thought into lately?**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**3. Define the term scientific method.**

Scientific Method –

**4. Identify the steps of the scientific method.**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

↓

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

↓

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

↓

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

↓

5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

↓

6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**5. The scientific method is a very strict, rigid process.**

Circle One : True False

**6. Define the term variables.**

Variables –

**7. What is the difference between an independent and dependent variable?** (Not in the book.)

Independent (*manipulated*) : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dependent (*responding*) : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**8. Scientists must make sure to avoid researcher bias when performing experiments.**

Circle One : True False

**II. Units Of Measurement**

**1. What are the SI units of measurement?**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**2. SI units are used universally.**

Circle One : True False

**3. Match the SI unit with the correct quantity measured.**

1. \_\_\_\_\_\_\_\_ Temperature A. Kilogram (kg)

2. \_\_\_\_\_\_\_\_ Mass B. Mole (mol)

3. \_\_\_\_\_\_\_\_ Light Intensity C. Ampere (A)

4. \_\_\_\_\_\_\_\_ Length D. Meter (m)

5. \_\_\_\_\_\_\_\_ Amount of substance E. Kelvin (K)

6. \_\_\_\_\_\_\_\_ Time F. Second (s)

7. \_\_\_\_\_\_\_\_ Electric Current G. Candela (cd)

**4. Give an example of a derived unit of measurement.**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**5. The metric measurement system is based on multiples of 10.**

Circle One : True False

**6. Complete the following table.**

|  |  |  |  |
| --- | --- | --- | --- |
| **SI Unit Prefixes** | | | |
| **Prefix** | **Symbol** | **Meaning** | **Multiple Unit Of** |
|  | k | Thousand (103) |  |
| Deci - |  | Tenth (10-1) | 0.1 |
|  | c | Hundredth (10-2) |  |
| Milli - |  | Thousandth (10-3) | 0.001 |
|  | μ | Millionth (10-6) |  |
| Nano - |  | Billionth (10-9) | 0.000000001 |

**7. What is the difference between mass and weight?**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**8. What is one cubic centimeter (cm3) equal to in liquid measurement?**

\_\_\_\_\_\_\_\_\_\_\_ mL