

# L2 maths and physics short task

[Science](#), [Physics](#)



This section should be completed by the learner for each Level 2 unit taken and must remain with the assignment for moderation purposes. Learner

Centre Name

Unit Title Level 2 Introduction to Mathematics and Physics 500 word task

Word Count 500

Date due in 29th November 2013 Date Submitted

Assignment Title

L2 Maths and Physics Short Task

Assignment Brief

You must produce a poster showing the relationship between the temperature scales of Fahrenheit, Celsius and Kelvin using equations and graphs including an evaluation of the usefulness of each. (2. 3)

Your poster must contain the following:-

An explanation of the three different temperature scales including fixed points. Remember to reference your sources. (1. 1, 1. 2, 2. 1, 5. 1)

An evaluation of why and when each one is used. Remember to reference your sources. (2. 1, 2. 2, 2. 3, 5. 1)

Equations to convert Fahrenheit to Celsius, Fahrenheit to Kelvin and Kelvin to Celsius. (1. 2, 2. 1, 2. 2, 2. 3, 5. 1)

One graph with two lines that shows the conversion from Fahrenheit to Celsius and Fahrenheit to Kelvin. (1. 2, 2. 1, 2. 2, 2. 3, 5. 1)

An explanation of how these equations are related to the straight line equation,  $y = mx + c$ , including what the constants  $m$  and  $c$  stand for. (1. 2, 2. 1, 2. 2, 2. 3, 5. 1)

Correct spelling, punctuation and grammar. (5. 1)

Disclaimer to be completed by the learner for each piece of work submitted for assessment:

“ This is all my own work and all sources including Internet sources have been acknowledged and attributed in the text and bibliography. I am aware of the Ascentis Malpractice Policy and Procedure.”

Learner Signature \_\_\_\_\_  
Date \_\_\_\_\_

This section should be completed by the tutor and returned to the learner

Learning outcomes

Assessment criteria

The learner should be able to:

The Learner has achieved this outcome because s/he can:

Met

1. 0 Demonstrate a developing knowledge and understanding of a range of terms and concepts related to mathematics and physics appropriate to the unit and level of study

1. 1 Identify some key terms and concepts in mathematics and physics

1. 2 Produce evidence of appropriate use of terms and concepts related to mathematics and physics

2. 0 Demonstrate a basic knowledge and understanding of a range of sources of evidence related to mathematics and physics in a short task

2. 1 Identify and use a range of sources of evidence in relation to mathematics and physics in a short task

2. 2 Interpret evidence related to mathematics and physics appropriately

2. 3 Produce a short report / assignment that presents information in an

appropriately structured format, drawing some conclusions and offering some evaluation

5. 0 Apply language skills appropriate to the level of study

5. 1 Use correct spelling, grammar and punctuation appropriate to the level of study

Feedback to the learner on the content of the assignment and achievement of relevant learning outcomes

Tutor Name Tutor Signature Date

Learner Signature Date

ISA Signature Date

L2 Maths and Physics Short Task

This report will produce a poster showing the relationship between the temperature scales of Fahrenheit, Celsius and Kelvin using equations and graphs including an evaluation of the usefulness of each.

Temperature Scales

The three different temperature scales used today are Fahrenheit, Celsius and Kelvin.

Fahrenheit (°F)

Fahrenheit temperature scale, developed in 1724 by Gabriel Daniel

Fahrenheit, is based on 32 for the freezing point and 212 for the boiling point of water (Three Big Temperature Scales, n. d.). The interval between freezing point and boiling point is divided in 180 equal parts. The absolute zero for the Fahrenheit temperature scale is at  $-459.67^{\circ}\text{F}$ . It is a non-metric temperature scale. Meteorologists in the United States use it to record surface temperature measurements. Medical practitioners use it to record

human body temperature.

Celsius ( $^{\circ}\text{C}$ )

Celsius temperature scale, invented in 1742 by the Swedish astronomer Anders Celsius, is the modern system of measuring temperature and is based on 0 for the freezing point and 100 for the boiling point of water. The interval between freezing point and boiling point is divided in 100 equal parts. The absolute zero for the Celsius temperature scale is at  $-273.15^{\circ}\text{C}$ . It is a metric temperature scale. Both Fahrenheit and Celsius are used to record weather temperatures.

Kelvin (K)

Kelvin temperature scale is an extension of the degree Celsius scale down to absolute zero (Metric system temperature, n. d.). In this scale, water freezes at the value 273.15 and boils at 373.15. The absolute zero for the Celsius temperature scale is at 0 K. It is a metric temperature scale and is used in most of science (Units of Temperature, n. d.). Kelvin scale has been adopted as the international standard for scientific temperature measurement.

Fahrenheit to Celsius Conversion

The equation to convert Fahrenheit to Celsius is given by

The above equation is related to the straight line equation,  $y = mx + c$ . The value of slope constant,  $m$  is  $1/1.8$  or  $5/9$  and the value of intercept constant  $c$  is  $32/1.8$  or  $160/9 = 17.78$ .

Fahrenheit to Kelvin Conversion

The equation to convert Fahrenheit to Kelvin is given by

The above equation is related to the straight line equation,  $y = mx + c$ . The value of slope constant,  $m$  is  $1/1.8$  or  $5/9$  and the value of intercept constant  $c$  is  $273 + 32/1.8$  or  $2617/9 = 290.78$ .

#### Kelvin to Celsius Conversion

The equation to convert Kelvin to Celsius is given by

The above equation is related to the straight line equation,  $y = mx + c$ . The value of slope constant,  $m$  is 1 and the value of intercept constant  $c$  is -273.

#### Conversion Graph for Fahrenheit to Celsius and Fahrenheit to Kelvin

Figure 1 shows a graph with lines that shows the conversion from Fahrenheit to Celsius (green line) and Fahrenheit to Kelvin (maroon line). As shown in figure 1, both lines are straight line.

Figure 1: Graph showing two lines- Fahrenheit to Celsius and Fahrenheit to Kelvin

#### Bibliography

Anon., n. d. Metric system temperature. [Online]

Available at: <http://lamar.colostate.edu/~hillger/temps.htm>

Anon., n. d. Temperature Scales and Absolute Zero. [Online]

Available at: [http://cryo.gsfc.nasa.gov/introduction/temp\\_scales.html](http://cryo.gsfc.nasa.gov/introduction/temp_scales.html)

Anon., n. d. Three Big Temperature Scales. [Online]

Available at: [http://www.physics4kids.com/files/thermo\\_scales.html](http://www.physics4kids.com/files/thermo_scales.html)

Anon., n. d. Units of Temperature. [Online]

Available at: [http://ww2010.atmos.uiuc.edu/\(Gh\)/guides/maps/ctof.rxml](http://ww2010.atmos.uiuc.edu/(Gh)/guides/maps/ctof.rxml)