Training Scheme Section A
Trainee guide

The evidence required for Section A is comprised of portfolio evidence backed up by short assessments.

The portfolio evidence is essentially a description of all of the basic theory covered by section A. It must cover every criteria in section A and be written in the trainee's own words. The trainee's explanations can be backed up by quotations from texts. All direct quotations should be written in italics with quotation marks and cited in the footnote of the relevant page. All reference sources that the trainee has used to complete section A must be documented in a bibliography. (It would be sensible to break the portfolio into logical sections (e.g. a section on water quality etc.) and put a bibliography at the end of each section)
The trainee must sign a declaration to state that all work submitted for assessment is their own work (quotations in italics are not included in assessing the trainees knowledge). Any plagiarism present will result in referral for consideration of penalties under the Association's professional standards policies.

Evidence referencing.
The portfolio must be number referenced throughout. The evidence for each of the criteria must be specifically referenced in an appendix. E.g. it would not be acceptable to reference criteria that only take a few sentences as being found "somewhere" on page 10, leaving the assessor with the task of searching through to find the criteria. (*It should be noted that this practice is something which is common with plagiarism when a student copies and pastes a large section of material which they are unfamiliar with, and then references the entire section with the "hope" that suitable evidence for a specific criteria lies somewhere amongst it*)

Example

Example Syllabus Extract

1. Fundamentals of Electricity

1.1 Define what is meant by positive and negative charge
1.2 Explain what positive and negative ions are
1.3 Define what is meant by the term mobile charge carrier
1.4 Define the term number density
1.5 Define the term drift velocity and state the typical drift velocity in a conductor

2. Electrical current Flow
2.1 Define the term electrical current flow
2.2 Explain how current I flow depends on number density n, cross sectional area of a conductor a, drift velocity v and the charge on the mobile charge carrier Q

Example Portfolio evidence

Fundamentals of electricity

1.1 Charge

Charge is a fundamental property of matter. There are two types of charge that exist which we refer to as positive and negative charge. The properties of electrical charge are that there is an attractive force between opposite charges and a repulsive force between like charges. i.e. there is a force of attraction between a positive and negative charge and a force of repulsion between either two positive charges or two negative charges.

1.2. Atoms and Ions

Atoms are made up of a nucleus around which much less massive particles called electrons orbit. The nucleus is made up of particles called protons and neutrons. Electrons are negatively charged particles and Protons are positively charged, the magnitude of the charge on each particle is equal. "*The magnitude of an electrons charge is the same as that of a proton, but of the opposite sign*"[1] a proton but Neutrons have no electrical charged. In the structure of an isolated atom in a stable state it will have an equal number of electrons and protons and therefore equal positive and negative charges. These charges effectively cancel each other out and so overall the atom is electrically neutral. It is possible for electrons to be added or removed from a neutral atom and this process is called ionisation. The positive and negative charges will therefore no longer be balanced and the atom is referred to as an ion.

1.3 Charge on Ions

The magnitude of charge Q on the ion depends on how many electrons have been added or removed. The magnitude of charge on an electron is represented by the symbol e but as we have stated above the magnitude of charge on a proton is the same so we can also refer to it as e.
As an electron is negative its charge is -e and as the proton is positive its charge is +e.
We can use this notation to indicate how much charge is on an ion. If 3 electrons have been removed from the atom the charge will be +3e. If two electrons have been added the charge on the ion will be -2e.

1.4 Mobile charge carriers

In solids atoms are firmly fixed in place and so ions cannot move through solid materials. In metals however many electrons are not bound to their parent atoms and can move through the material. Therefore electrons can act as mobile charge carriers in solid materials such as copper wires. In liquids and gases the whole atoms can move freely and therefore if an atom is ionised it can act as a mobile charge carrier within the material. A material can only conduct electricity if it contains mobile charge carriers and the amount of current that can be produced will partly depend on how many mobile charge carriers there are per cubic metre of material. This quantity is referred to as the number density (of mobile charge carriers) of the material. The velocity that the mobile charge carriers move through the material is referred to as the drift velocity and this value is only in the order of 1 mm per second for a typical conductor like copper.

1. Page 503 -Physics Second edition Kelly, Getts, Stove McGraw Hill ISBN 0-07-112675-9

2.1 Electrical Current Flow

Electrical current flow is defined as the rate of flow of charge through a conductor.

The current **I** is directly proportional to

- The number density of the conductor **n**
- The cross sectional area of the conductor **a**
- The drift velocity **v**
- The charge on the mobile charge carrier **Q**

I = naQv

References

			ISBN
Physics Second edition	Kelly, Getts, Stove	McGraw Hill	0-07-112675-9
OCR Physics 1	Cambridge Advanced Science	Cambridge University Press	0-521-78718-1

Syllabus section		Evidence	Verified
1.1	Define what is meant by positive and negative charge	1.1	*assessor*
1.2	Explain what positive and negative ions are	1.2 -1.3	*to*
1.3	Define what is meant by the term mobile charge carrier	1.4	*sign*
1.4	Define the term number density	1.4	
1.5	Define the term drift velocity and state the typical drift velocity in a conductor	1.4	
2.	Electrical current Flow		
2.1	Define the term electrical current flow	2.1	
2.2 of a	Explain how current I flow depends on number density n, cross sectional area conductor a, drift velocity v and the charge on the mobile charge carrier Q	2.1	

Note

The quotation used in the example is not being submitted as evidence for the assessment criteria it is used to validate or back up what the student has submitted clearly in their own words

The numbers used to index the portfolio sections do not have to match the syllabus references. In this example the numbering used in the portfolio evidence is the page and paragraph number. i.e. 2.2 refers to paragraph 2 on page 2.

You can see that each page in the portfolio is broken into relevant paragraphs and in the evidence referencing table the evidence for each syllabus criteria is clearly referenced to a specific page and paragraph/s

The portfolio should be broken into logical sections covering different areas such as water quality, principles of haemodialysis etc. In this way the portfolio referencing and evidence matrix will be more practical to manage applying it separately to each section