Competencies for RSciTech

A: Application of knowledge and understanding: Identify and use relevant scientific understanding, methods and skills to complete tasks and address well defined problems

A1: apply knowledge of underlying concepts and principles

This means that you can explain the major reasons for undertaking your work. You may be for example:

- working in a particular subject discipline in an applied area. You should be able to name the main components / elements involved in a task and why you are carrying it out.
- involved in carrying out a particular procedure; you should be able to explain why you are using that procedure and why it is relevant to the work undertaken.
- involved in using particular experimental model; you should be able to explain why you are using that model, how you are using it and what the results might mean.

A2: review and choose appropriate scientific techniques, procedures and methods to undertake tasks

This means that you can explain the basis underlying your scientific method and why it is the appropriate one. For example:

- you should be able to state the principles behind the activity that you are undertaking and any associated technology
- you should be able to explain the reasons behind the choice of method used to carry out the activity and the criteria for basis of what you are looking for.

A3: interpret and evaluate data and make sound judgments in relation to scientific concepts

This means you can explain that your activity appears to have been successfully carried out or not, and what your data means, relating it to the underlying principles. You should also be able to present the data in an appropriate manner in order to explain your results.

- You can state that the activity has worked well or not. If not, you should attempt to give reasons why the activity 'failed' and what you will do next time to address this. You should also be able to explain and graphically demonstrate results of the activity and compare results from a number of different activities.
- You should be able to state whether the activity was successful, the rationale behind this conclusion and what the data might mean. Assuming the activity is successful, you should also be able to explain the scientific basis as to why the results occurred.

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B: Personal responsibility: Exercise personal responsibility in planning and implementing tasks according to prescribed protocols

B1: work consistently and effectively with minimal supervision to appropriate standards and protocols

This means that you can demonstrate the ability to carry out work with minimal input from your supervisor. You should discuss the work with you supervisor but then carry out the work with no or little further input, until discussing the results with your supervisor. You should provide examples of work that was completed to the appropriate standards and time frame in this manner.

B2: manage and apply safe working practices

This means that you follow and can explain safe working practices applicable to your area of work. This can include (but is not limited to):

- risk assessments associated with your work
- relevant Health and Safety regulations, e.g. COSHH, Noise, Manual Handling
- relevant Home Office Licenses
- safety training courses you have successfully completed for your laboratory role
- any monitoring of safety within your work e.g. for radioactivity, chemical contamination
- safety equipment and control measures necessary to work safely

Within your work you may also be responsible for an aspect of 'safety monitoring or training' and (if relevant) a description of this should be included.

B3: accept responsibility for the quality of work of self and others

This means that you accept responsibility for the quality of the work that you undertake and that of others – including if an activity does not work in the way that you expect. This can include:

- ensuring the activity is carried out to the agreed standard or protocol (such as Good Laboratory Practice) and you provide evidence for this.
- realising when something might not have been carried out quite correctly and the impact it could have on the quality and reliability of data or other outcome.
- pointing out 'good experimental data' and 'bad experimental data' and the reasons why the bad data might have occurred
- being prepared to say 'I'm not happy with this experimental data and I'd like to repeat the activity because of the following reasons'

If you supervise other staff then you will need to give evidence of how you have worked with them to ensure their work is carried out to the appropriate standards.

If you don't supervise other staff then there may be instances where your actions can have helped their activities e.g. you notice that a standard lab reagent/consumable/component has run out and you order some more straight away.

B4: take responsibility for completing tasks and procedures as well as using judgment within defined parameters

This means that you accept responsibility for completing the task/procedure to the required time line and are proactive if the time line might not be met. This might be due (but not limited) to:

- failure of an experiment
- failure of a critical piece of equipment
- a critical reagent running out
- staff absence making it impossible to complete on time

In these situations you will need to demonstrate you are proactively judging as to how and when you communicate this 'negative news'. In addition you should also indicate how you overcame the problems and impact on the agreed time lines.

C: Interpersonal skills: Demonstrate effective communication and interpersonal skills

C1: demonstrate effective and appropriate communication skills
This means that you can demonstrate effective and appropriate communication using oral, written and electronic means. This may include (but is not limited) to:

- discussing and agreeing objectives with your supervisor
- discussing and agreeing objectives in team meetings
- giving presentations of your work or other aspects of lab work (e.g. safety updates, method updates) to your supervisor and colleagues
- preparing written reports on your work

C2: demonstrate interpersonal and behavioral skills

This means that you can demonstrate skills that enhance your ability to interact with colleagues in the work setting. In these situations it may be appropriate to discuss these with your supervisor, as an external perspective is often very useful in this regard.

C3: demonstrate an ability to work effectively with others

This means 'team work' and can be in a large team or on a 1:1 basis. Here you will need to give examples of how you have worked effectively, what was the outcome and what was your role at the time.

D: Professional practice: Apply appropriate theoretical and practical methods according to protocol

D1: recognise problems and apply appropriate scientific methods to identify causes and achieve solutions

This means that you are able to understand why an experiment/procedure might have 'failed' and to identify how you might alter your methodology to address the problem. This means you will demonstrate your understanding of the underlying principles of the activity and how you are able to modify it to allow it to be 'successful'. NB this does not mean altering methodology that is sound when an unexpected result is achieved, only when the proper controls indicate the method is not working correctly.

D2: identify, organise and use resources effectively to complete tasks

This means that you can give examples of work undertaken and why the method/procedure used was chosen as the best (or most relevant) to use. This might include (but is not limited to)

- review of method – why is this one the best compared to others that are available
- cost effectiveness
- time taken
- IT considerations

D3: participate in continuous performance improvement

This means that you are aware of progress in your area and seek to discuss with your supervisor the strategy for improving the efficiency of your work in the laboratory. This can include – new and improved methods, new ways to increase throughput, ways to increase cost-effectiveness etc.

E: Professional standards: Demonstrate a personal commitment to professional standards

E1: comply with relevant codes of conduct and practice

This means that you can give examples of how you:

- comply with the Code of Professional Conduct of the Institute of Science and Technology
- manage work within all relevant legislation, regulatory frameworks such as Health and Safety Legislation, Home Office Regulations, Good Laboratory Practice (GLP), Local Codes of Practice etc.

E2: maintain and enhance competence in own area of practice within structured and managed environment

This means that you undertake activities to enhance your competence in your own area of practice (PPD – Professional and Personal Development). Your PPD report may be used as evidence for this section, and details of what you need to achieve in terms of PPD are outlined in the PPD section of the IST's website.

Note that PPD has to be submitted on an annual basis to maintain being on the Professional Registers and membership of the IST must be maintained in order to retain a presence on the Professional Registers.