

Peer Mentor's Pack

(A guide for returning Mentors)

School placed:

Link Teacher:

School Contact Number:

Placement Dates:

Week of _____ – Week of _____

“Think like a wise man but communicate in the language of the people”.

William Butler Yeats (1865 - 1939)



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1. What is In2science Peer Mentoring - Aims

Through participating in the In2science program, you are able to develop communication skills and be able to:

- **Improve your questioning techniques so as to effectively help secondary students**
- **Actively listen to students and their teachers**
- **Help students to think for themselves and improve their problem solving skills**
- **Help students develop good oral skills**
- **Communicate with students in a language they understand**
- **Help improve students academic performance and help raise their aspirations**
- **Help build on what the student already knows and understands**
- **Help students to successfully use their own methods**
- **Help students develop their powers of reasoning**
- **Help students develop their practical skills**
- **Most importantly, encourage students to enjoy their subject**

IMPORTANTLY you can help students develop and improve their self-esteem, motivation, confidence, persistence, application and time management.

“Education is not just about *Knowledge* (what I need to know) and *Skills* (what I need to be able to do). It is about *Motivation* (how much I want to be able to know and do) and *Confidence* (my belief that I am able to know and do). If peer mentoring can develop motivation and confidence then it can have a profound impact”

Topping & Ehly (1998) peer- assisted learning

The **In2science** program has been a very successful mechanism for promoting interest and enthusiasm for education through the use of university students as role models in schools.

In2science, here in Victoria, is run as a consortium between the Science Faculties at La Trobe University, the University of Melbourne, Monash University, RMIT University, Swinburne University of Technology, University of Ballarat and Deakin University to achieve the following aims:

- To generate enthusiasm for Science (especially the enabling subjects of Chemistry, Mathematics and Physics) in students in the middle years of their education (Years 5-10).
- To place university students in schools to act as positive role models to school science students inspiring them to achieve their potential in science and mathematics.
- Through the role models, promote the value and rewards of science and mathematics as a positive career choice.
- To foster links between schools and universities.

2. Benefits of involvement and how to get the most out of your placement:

Perceived benefit for university students:	How to get the most out of your involvement
Involvement in a valued community service as a positive role model, gaining satisfaction through helping to play a very influential part in the lives of young people.	<ul style="list-style-type: none"> • You will have the opportunity to inspire young people and pass on your enthusiasm and passion for your subject. • A willingness to get involved and try something new is a must.
Developed essential workplace and interpersonal skills, and patience.	<ul style="list-style-type: none"> • It is only through working with both the teachers and the students that you will develop these skills. • Within your classes you will encounter a wide range of individuals.
Imparted the knowledge and enthusiasm that they have for their chosen field of study onto younger students.	<ul style="list-style-type: none"> • Where possible offer to talk to the students about what you study and why. • Bring items in to show the students.
Increased confidence.	<ul style="list-style-type: none"> • As you get to know the students your confidence will grow. • Be willing to push your comfort zone to maximise the benefits.
Reinforced knowledge of the fundamentals of their study area.	<ul style="list-style-type: none"> • Be willing to present information as this will aid your own understanding.
Experienced giving someone else the understanding they have.	<ul style="list-style-type: none"> • It is only through interacting with the students over several weeks that you will see the benefits of imparting your knowledge.
Gained an insight into the teaching/learning experience.	<ul style="list-style-type: none"> • Mentoring is an ideal opportunity to experience teaching and learning from a different perspective. • Try presenting or leading an activity.
A well earned break from the rigors of study.	<ul style="list-style-type: none"> • Many Mentors see it as a break and something they look forward to each week.
Related their subject to the outside world.	<ul style="list-style-type: none"> • When possible, try to bring items in from university or talk about topics you are studying.
Gained experience that will help in making a choice of career.	<ul style="list-style-type: none"> • Great opportunity to see if teaching is for you.
Developed skills and experience that will make them attractive to a future employer.	<ul style="list-style-type: none"> • Going beyond your comfort zone and trying new things away from your own field of study. • Ask for a reference from the Peer Mentoring Coordinator to add to your portfolio.
An opportunity to do something different.	<ul style="list-style-type: none"> • It will be a real live experience and something you will never forget.
Developed good problem solving, time management, social and communication skills).	<ul style="list-style-type: none"> • Through working with the teachers you can gain new experiences and record it on your CV. • Teachers will give you feedback via an appraisal sheet at the end of placements.
Gained documented evidence to enhance their CV (resume).	<ul style="list-style-type: none"> • Ask the teachers to write something for you if required.
Certification of involvement signed by the Deans of Science at La Trobe University and The University of Melbourne.	<ul style="list-style-type: none"> • Collect your certificates of involvement at the end of the placement.
To be a volunteer.	<ul style="list-style-type: none"> • Volunteerism is now being held in high regard by many major businesses as part of their Corporate Social Responsibility.

3. What does In2science Peer Mentoring involve?

In2science involves the placement of university students from La Trobe University, the University of Melbourne, Monash University, RMIT University, Deakin University, University of Ballarat or Swinburne University of Technology into state schools for up to three hours per week (usually one morning or afternoon).

Placements last approximately 10-11 weeks.

At each school there is a **Link Teacher** who works closely with an In2science Coordinator and the classroom teachers.

As a returning **In2science** Mentor you will have undertaken a **training** program to prepare for the experience prior to commencing a placement.

Mentors work **closely** with the class teacher to provide support for the lesson, especially practical classes.

Update information on the program will be issued in the form of a newsletter (distributed via email) for which contributions are welcomed from all involved.

At the end of each placement block all parties involved; Link Teachers, class teachers, Mentor and pupils will undertake an **evaluation** of the program with the view to assessing the value of the program and improving the experience for subsequent years.

What are future employers looking for?

In most cases involvement in Peer Mentoring will strengthen your CV as it involved many of the characteristics that employers look for. These include:

- ◆ Communication skills – listening, spoken, non-verbal
- ◆ Capacity to learn new skills and processes
- ◆ Capacity for teamwork and cooperation
- ◆ Professionalism
- ◆ Initiative and enterprise
- ◆ Problem solving
- ◆ Decision making
- ◆ Commitment
- ◆ Volunteering
- ◆ Flexibility

By being involved in the mentoring program you open the opportunity to experience and gain some of these attributes for yourself.

If you are willing to push your 'comfort zone' you will experience and gain even more!

"Mentor was always smiling therefore she was approachable. It was very easy to ask her questions which she explained clearly. She always gave examples and get more interested in the topic (the PowerPoint was the turning point for me)."

Student

4. Glossary of Terms and Job Roles

- Peer Mentor - A volunteer from a partner university working in a school classroom under the supervision of the class teacher.
- In2science Team - In2science program organisers who oversee the day to day running of the program and placements made up of the In2science Manager and university-based Coordinators.
- In2science Manager - Person responsible for overseeing the In2science program.
- In2science Coordinator - Person responsible for the recruitment, training and assignment of Peer Mentors from their university. Also the person liaising with some of the schools participating in the program.
- In2science Support Mentors - Group of experienced Peer Mentors who help the In2science team with training and supporting new Mentors.
- Schools - These are State schools where Peer Mentors will be placed in Years 5 – 10
- Students - Refers to the students in the schools
- Class Teacher - The teacher(s) of the class(es) to which the Peer Mentor is assigned during their placement. They have the responsibility of managing how the Peer Mentor is used in the class and ensuring the Peer Mentor is fully aware of the Aims and Objectives of the lesson.
- Link Teacher - A teacher nominated by the school to liaise between the Peer Mentor, the Class Teacher and the Peer Mentoring Coordinator.
- In2science Program** - A project run as a joint venture between the Science Faculties at universities in Victoria.
- Aims and Objectives of lessons -
Lesson **aims** are the overall aims of the topic being taught i.e. what is to be achieved by the end of the topic.
The **objectives** are the methods used in each lesson to achieve the aims.

"[Mentor] explained complex situations and statements in a simpler way that was understandable. Mentor gave an insightful view of genetics and what is happening in that area." Student

5. Your place in the school

You will be placed in a school that fits in with you and your university commitments for a **2-3 hr block of time per week** (AM or PM). This will last about **10-11 weeks in total**.

Once you go into a school you are taking on a different role to your normal activity as a university student, and it is important that you act accordingly. The ethos and atmosphere of every school is different, but you will soon learn to blend in to your own particular school.

Talk to your **In2science Coordinator** and the Link Teacher about the school. Generally it is fine to dress as 'you' but do be aware of what you wear and what it says about you and the institution you are from.

Always remember to let the school know if you are unavailable for some reason.

The Link Teacher is your support within the school, although your **In2science Coordinator** will make visits to see you. If you have any issues contact the Link Teacher or the Coordinator at an early stage. They should be able to resolve the problem with the minimum of fuss.

If the Link Teacher is not the classroom teacher, try to meet up with them on a regular basis to discuss issues of interest.

The Link Teacher may keep a **record of your attendance** and will request you sign-in each visit (this will probably be at the main office/reception).

Remember, you are a visitor in the teacher's domain. Avoid telling them their job and **never** try to upstage or correct them in front of students. If you feel there was an incorrect fact delivered, **tactfully** bring it to the teacher's attention at the end of the lesson. Always try to show a positive attitude and be supportive of the teacher. Try to identify activities where you can play a part, or introduce new ideas, and discuss them with the teacher.

You will work under the guidance of the classroom teacher, offering advice and support to the students. Mentors have been effectively used in the following ways:

- Moving round the class helping individuals in tandem with the teacher. Motivating students to stay on task or challenging their understanding of a task.
- Working with particular individuals in the class.
- Leading a small group of students (either more or less able) on a mini project or task.
- Demonstrating a particular piece of equipment to groups or individuals.
- Involved by the teacher in whole class discussions.
- Helping the teacher plan an activity or visit for the students.

Learning Names

It is vital that if you want to work effectively with the students that you get to know them. At the same time you must maintain their respect so you stay in control of all situations. This is a very difficult balance to get right. The way you achieve this will depend upon your personality as much as the age and ability of the students along with the ethos of the school in which you are working. Spend some time to learn their names and use them.

Techniques to learn names

1. Class lists
2. Listening to teacher
3. Asking other students
4. Looking for names on books

Many Mentors find they achieve the best results by encouraging the students to use their first names and, in general, presenting themselves as students and not substitute teachers – effectively adopting an older brother/sister role. Whatever you do, try to appear confident and relaxed. Always try to relate the subject matter to the "outside world" whenever possible.

Avoid speaking down to students.

6. Mentoring in the Classroom – practical hints and tips

Depending upon the school, your timetable and the school's timetable you could be working with students of different ages, ability and background.

Make sure you have the school contact number and the In2science Coordinator's numbers at all times should you need to contact them away from the school.

Here are some pointers to help you settle into your role effectively:

- Ensure you wear your name badge (first name only) and make sure the classroom teacher introduces you on the first week.
- 😊 **Smile!** It is the best ice breaker!!
- Always try to seem relaxed and confident (not easy at the start) no matter what the situation. You need to gain the students **trust** and most importantly their **respect**. This can be achieved by:
 - Treating them with respect and courtesy – valuing them as an individual.
 - Learning their names and using them.
 - Listening to them and working with them.
 - Showing a sound subject knowledge – *“know what you are talking about”*
 - Being fair and consistent – don't treat any individual differently.
 - Give them your time – this is always appreciated.
 - Avoid hovering over the student, get down to their level to gain eye contact.
- Use **praise** and **encouragement** whenever possible. Some students you encounter have very low self-confidence. Use the stickers, pencils etc to reward positive work
- Be extremely careful of the language you use. **Avoid swearing** (however minor) and colloquialisms.
- Avoid telling students the answer to a problem. Try to guide them through the steps to solving the problem themselves. ***“Ask questions rather than give answers”***
- In some cases you may be asked to lead a small group of students in an activity. Always:
 - Make sure **you** understand the task being set by the teacher.
 - Explain things **clearly**.
 - Avoid technical jargon unless it is appropriate to the work.
 - **Explain** new terms and give a definition.
 - Get a student to re-explain the task so you are happy they understand.
 - Keep a check on the **time** as there is nothing worse than running out of time.
- Try to avoid doing all the work for the students (they are highly skilled at getting unsuspecting people to do things for them):
 - *“Can you draw it for me?”*
 - *“If you set up the apparatus then I will know it is right.”*
 - *“Can you show me which paragraph has the answers in?”*Try to lead the students using suitable **hints** and **questions**.
- **Never discriminate** or show favouritism. Be aware of student's sensitivities, ethnicity, social class, gender, religion.

- Some students learn much more quickly through practical tasks than book work. Many also learn visually so **diagrams** do help them understand.
- Where you have detailed knowledge of the topic, you will naturally feel much more confident and more in control. Even when the work is new to you, however, you still have an important role to play in showing the students how **you** tackle the learning process.
- If you have any trouble or issues with a student, **always** hand over the situation to the teacher. They are in charge of the class at all times and you are not there as a disciplinarian.
- Try to have patience.
- When explaining a task or concept try relating it to an everyday example that they can relate to.
- Try to find out what the student already knows and then build their knowledge in small steps.
- Taking items with you into the class can be a good ice breaker and give you something to talk about. E.g. specimens, equipment, animals etc to show the students and talk about.

Useful questions to ask students regarding their work:

- *“What could you do to improve this experiment?”*
- *“How is this useful to your everyday living? – give an example”*
- *“Who discovered this?”*
- *“Why is it important to know this?”*
- *“How would you prove it is true?”*

Find out more about the curriculum the students are following:

<http://www.vcaa.vic.edu.au/>

VELs = Victorian Essential Learning CSF= Curriculum Standards Framework

Remember you have made a serious commitment. If for any reason you cannot attend or are running late make sure the Link Teacher and the Peer Mentoring Coordinator are aware of the situation.

“Mentors should not just support, prompt or ‘scaffold’ the student towards the ‘right’ answer. They should also challenge and extend the student’s fixed ideas. Maybe there is more than one ‘right’ answer.”

K. Topping, ‘Tutoring’, *International Academy of Education*

Tips for Being an In2science Mentor in a primary school

- In most schools the curriculum is reasonably flexible so the class may not be used to doing science and the structure of classes may change from week to week. For example they might do maths one week and science at the same time the following week.
- There are many strategies that primary school teachers use to get the attention of the students, they may hold up one hand and wait until everyone else does, clap a rhythm and get the students to copy it until they are all paying attention, say ‘hands on heads’ or simply ask the

students to look at them. Watch what the teacher does so that you can use the same method when working with small groups or even with the whole class.

- For maths, primary schools often do small group work where the students rotate through a number of activities – you may be asked to work with a particular group of students or to run one of the activities.
- When doing science activities with primary school students, each step needs to be explained clearly and it is best to demonstrate what the students need to do before giving them any equipment because they can be easily distracted.
- Always consider the vocabulary and level of understanding primary school students and communicate with them accordingly. You will often need to explain science concepts by simplifying them and explaining the meaning of new words.
- Many primary school teachers are not confident about science so they really appreciate having someone with science knowledge in the class. This can sometimes lead to teachers asking mentors to plan and run lessons – in this situation, rather than organising something on your own, it is recommended that you work with the teacher to plan an activity together and then help the teacher to implement it in the classroom with the mentor providing the science knowledge and the teacher helping to make it a valuable learning experience for the students.
- Primary schools are very focused on literacy so you may find that lots of the activities (even maths and science ones) have a strong literacy focus and helping the students in this area will be part of your role.
- Younger children can sometimes be clingy and affectionate so be aware that they will ask lots of questions about you and may try to give you a hug or hold your hand.
- Positive reinforcement works extremely well with primary aged students so take every opportunity to praise and encourage them.
- Be aware that some primary school teachers may talk to mentors in the same tone they use for the children which can sometimes be off putting.

7. Do's and Don'ts of Peer Mentoring

COMMUNICATION – this is at the heart of quality mentoring. Good clear communication with the students and teacher is important. Think about how you engage the students and the words you use. Think about the questions you ask to get them thinking about the science/maths they are doing. Don't forget your body language, where you stand etc.

Personal Information – beware of giving away personal information to students. Think about why they want it. Common is for Mentor to be asked to join Facebook etc. to avoid any issues keep your interaction to being in the classroom.

Cultural Issues – try to be sensitive to the cultural background of the students. This is especially important when discussing topics such as evolution

Position of Power – you are going to be in a position of power as the students see you as an adult in the classroom. Be aware of the influence you can have over them and do not misuse it.

Bad Language – avoid swearing and don't condone it when the students use it.

Discipline – this is not your responsibility but in cases where you need to ensure safety of the students you may need to be assertive in your instructions.

Sexual Harassment – it is important that you tell the teacher or your In2science coordinator if anything occurs at the school which makes you feel intimidated, humiliated or offended.

Facilitating Learning – we are there to help students raise their aspirations so we must avoid giving answers but try to encourage the students to discover the answers for themselves with our support.

Showing Initiative – teachers' most common feedback for what they want from a Mentor is that they can show initiative – teachers don't want another student in the class to look after.

What to do if a student confides in you about personal issues? – We cannot keep secrets for students. Usually a student wants to confide in you because they want a problem to be solved. In most cases there is not the real opportunity to have long private conversations in a classroom. Always:

- Listen to the student with empathy.
- Tell them you will need to tell a teacher as they are the best person to deal with it.
- Offer to go with them to talk to the teacher
- Ensure a teacher or the Link Teacher is told before you leave the school.

Presentations - feel free to offer to do a presentation about your Uni life or about a topic. As you have experienced Mentoring before you may wish to challenge yourself a little more and try something different. Many Mentors have done this and find it very rewarding. Talk to the Class teacher about how else you can support learning in their class, see if they want to try something new. Suggest a visit to the university.

8. Planning a visit into the University

You may want to organise a visit to the university to see some science in action, undertake an activity or have a general look around. There are a few important things to consider which will ensure the visit runs smoothly:

- Don't feel obliged to plan a visit.

- Talk it through with the class teacher to see what they think.
- **Discuss** your proposal with your In2science coordinator
- Talk to university staff to see if a visit can be accommodated.
- Teachers will be responsible for:
 - Planning the excursion from school
 - Contacting parents
 - Arranging transport and costs
 - Supervising the students at all times on the visit.
 - Ensuring they have done a risk assessment of the trip.
- Ensure that the university person has details of the date, time and nature of any visit and contact details for the teacher and yourself in case they need to get in touch.
- Take photos and encourage teachers to put something about the visit in their school newsletter
- Write a few lines to be included in the In2science newsletter.

9. Feedback from students about what makes a good Mentor

“Mentor was always smiling therefore was approachable, so it was very easy to ask questions which were explained clearly. Mentor always gave examples and get more interested in the topic (the PowerPoint was the turning point for me).”

“Mentor helped me learn more about genetic engineering.”

“Mentor Explained complex situations and statements in a simpler way that was understandable. They gave an insightful view of genetics and what is happening in that area.”

“Mentor was easily approachable and always willing to help us with questions and work.”

“Mentor always gave off a very approachable vibe which made them seem relaxed and comfortable.”

“Mentor used a fun and easy going approach with us.”

“Mentor explained things in a way that was different to how the teacher explained, which is useful when you don’t understand what the teacher said.”

“Mentor helped me by defining questions for me and taking me through them step by step rather than just answering them.”

“The Mentor helped us by giving us tips and helping us, making us more confident.”

“When I had no idea what to do the Mentor tries to explain it to help me think rather than telling me what to do.”

“Mentor didn’t help but was very irritating.”

“Our Mentor in maths helped me because they gave me confidence in myself and set things out more easily and explained things clearly to me.”

A successful placement is when:

- **Both** the teacher and the Mentor **share** the same expectations about their involvement in the program.
- Teachers are able to **communicate** with the Mentors in advance what the lesson content is going to be.
- The teacher communicates what **role** they want the Mentor to take each lesson.
- The Mentor shows **initiative** and is willing to go **beyond** their comfort zone.
- Teachers **facilitate** the **interaction** of the Mentor with the students and involve the Mentor into the fabric of the lesson.
- Teachers **introduce** the Mentor to the class and **explain** what their role is.
- Mentors are able to make **regular** visits over a number of weeks.

10. Communication Skills

Steps to Good Communication

Listening

It is important to be a good listener and to be able to show that you are actively listening to the students. Ensure you are paying attention to the student and stop other tasks you may be doing. Be aware of body language, yours and theirs.

Avoid trying to speak for them. It is best to give them a chance to explain what they want. If they are stuck on a question then get them to read it to you. This will give you a good sense of their reading skills also. You may need to explain a term or phrase to help them understand the question.

Questioning

Avoid giving the students the answers! Try to ask helpful and intelligent questions that give the student clues and guide their thinking or challenge their misconceptions. Avoid closed questions which only need a one word answers that just rely on memory. Try to get the student thinking.

Examples: *'what kind of problem is this?' 'what information do you have to help you answer this?'*, *"what are the key words?"*, *'what would happen if...'*, *how did you come to that conclusion?'*

Make sure you give them some thinking time to answer. If you are working with a small group of students then ask the others if they can help. Simple though it may seem you should also avoid answering your own questions. This is something you may do early on before your confidence grows.

Body language

Try to be sensitive to this and be aware that many students are shy and may have poor communication skills. If a student seems reluctant to engage in discussions with you try talking to the teacher to ask how they deal with them.

Speaking and responding assertively

If you are not sure of an answer don't be afraid to tell them but ensure you follow up for the next week. Try to relate the topics to the real world, possibly giving examples that you may have looked at.

Use **diagrams** and **pictures** whenever possible to explain a concept or idea.

If you can go back later to check the student fully understand and has been able to move on to other questions.

Praise and encouragement

Give the students praise and encouragement very often it does help keep their confidence high and gives them a sense of achievement. You will be amazed at the effect you can have on the students if you are positive about what they complete.

Much of this is derived from the Duolog math tutoring method, Topping 2000

Closed and Open Questions

A **closed question** can usually be answered fairly quickly, for example:

- *'Which is the heaviest piece of wood?'*
- *'How many legs does a spider have?'*
- *'Where did you place the two masses on the see-saw to balance it?'*
- *'What was the starting temperature of the water?'*
- *'Where did you find the woodlice?'*

Closed questions have their place - for example, in drawing together the results found by different groups during an investigation, or directing the children's observation.

An **open question** requires more thought, and the mentor should therefore allow the children longer to answer it - for example:

- *'If we move the model nearer to the torch, what might happen to its shadow?'*
- *'Why do you think we find so many woodlice under stones?'*
- *'What do you think will happen to the temperature of this hot water if we leave it in the classroom overnight?'*

Open questions are useful in discussing hypotheses, explaining the results of an investigation and drawing conclusions.

Try to encourage students to think for themselves and try to FACILITATE their learning rather than just giving them the answer.

Improving Your Questioning Techniques

Questioning a group

- Think about the type of question you are going to ask and why you are asking it. Sometimes you need to think several stages ahead to lead the students where you want to go.
- Ask question – pause – name the student you want to answer.
- Do not allow calling out (try to keep it orderly)
- Be very careful about how you deal with incorrect answers, your aim it to encourage involvement so dismissive statements like “no”, “Don’t be silly”. Try things like “That’s not quite what I was looking for”, “have another go”. Better still; repeat the question in case some students did not understand what you were asking them.
- Randomly distribute your questions.
- Avoid picking someone to answer before the question is asked (the others don’t usually listen in this case).

Further information:

<http://honolulu.hawaii.edu/intranet/committees/FacDevCom/guidebk/teachtip/teachtip.htm#questions>

Examples of words to use

Draw	State	Record	Recognise	Identify
Sort	Describe	Select	Present	Locate information from text
Decide	Discuss	Define	Classify	Explain what
Devise	Calculate	Interpret	Construct	Clarify
Plan	Predict	Conclude	Solve	Determine the key points from ...
Formulate	Explain why	Use the pattern to ...	Reorganise	Explain the differences between ...
Link/make connections between ...	Use the idea of ... to ...	Use a model of ... to ...	Provide evidence for ...	Evaluate the evidence for ...

General increase in demand/difficulty

How to deal with questions asked of you

- Accept at any time but encourage others not to interrupt you while you are in a conversation with another.
- Try to treat all relevant questions with equal importance, however trivial they may be. Very often students are seeking reassurance.
- If you don't know the answer then do not bluff your way through, students will immediately see through you. Try the following:
 - "I'll have to get back to you on that"
 - "I'm not sure I think it's.... but I will ask the teacher"
 - "I don't know the answer to that one, why don't we both try to see what answer we can find for next week?" **make sure you do follow this one up!!!**

Bloom's Taxonomy

Questioning should be used purposefully to achieve well-defined goals. An instructor should ask questions which will require students to use the thinking skills which he is trying to develop. A system exists for organizing those thinking skills. Bloom's Taxonomy (Benjamin Bloom (ed.), *Taxonomy of Educational Objectives: Handbook I Cognitive Domain* (New York: David McKay Co., 1956)) is a hierarchical system of ordering thinking skills from **lower to higher**, with the higher levels including all of the cognitive skills from the lower levels.

Below are the levels of the taxonomy, a brief explanation of each one, and examples of questions which require students to use thinking skills at each level.

1. Knowledge - Remembering previously learned material, e.g., definitions, concepts, principles, formulas.

- What is the definition of "speed"?
- What is Hook's law?
- What are the stages of cell division?

2. Comprehension - Understanding the meaning of remembered material, usually demonstrated by explaining in one's own words or citing examples.

- What are some words which are commonly used as adjectives?

- What does the graph on page 19 mean?
- Explain the process of digestion.

3. Application - Using information in a new context to solve a problem, to answer a question, or to perform another task. The information used may be rules, principles, formulas, theories, concepts, or procedures.

- Using the procedures we have discussed, what would you include in a summary of evolution?
- How does the law of supply and demand explain the current increase in petrol prices?
- Based on your knowledge, what statistical procedure is appropriate for this problem?

4. Analysis - Breaking a piece of material into its parts and explaining the relationship between the parts.

- What are the major points that E. B. White used to develop the thesis of this essay?
- What factors in the Australian economy are affecting the current price of houses?
- What is the relationship of probability to statistical analysis?

5. Synthesis - Putting parts together to form a new whole, pattern or structure.

- How might you assess if boys are better at sport than girls?
- How would you proceed if you were going to do an experiment on caloric intake?

6. Evaluation - Using a set of criteria, established by the student or specified by the instructor, to arrive at a reasoned judgment.

- Does Hemingway use adjectives effectively to enhance his theme in 'The Old Man and the Sea'?
- How successful would the proposed federal income tax cut be in controlling inflation as well as decreasing unemployment?
- How well do models in science replicate the real world?

Instructional Development, Centre for Teaching Excellence, University of Illinois at Urbana-Champaign

The learning brain - suggestions for In2science Mentors

Below is a list of hints, many of which you are no doubt already capable of using. When reading these hints it is important to bear in mind that this is not a case of "one size fits all" because the brain is deeply personalised. Indeed, it is unlikely that you consider any two children in a class to be identical learners; these hints will help you in creating a neuroscientific teaching style and environment.

1. Wherever possible relate the subjects you are teaching to the student's prior knowledge, experiences and personal goals, i.e. demonstrate the relevance of the topic to them.
2. Build on existing knowledge in order to feed into the readymade networks of activation in the brain.
3. The brain is a natural pattern detector so help pupils to see patterns and use them to predict outcomes where possible.

4. Try and give students a concrete demonstration of abstract or otherwise unobservable concepts. This allows their senses to experience the concept firsthand and could even involve physical movement, for example having the students' pair up as bases in DNA helices or being the electrons in chemical reactions.
5. Attention can be gained either through attention-grabbing stimuli (bottom- up). For example the bottom-up approach may require an "over-the-top" chemical reaction or emotive video clip. It may be helpful to use these at different stages in the learning; the bottom-up approach is likely to arouse curiosity which may then result in directed attention to discover the underlying causes or understanding.
6. Attention cannot be maintained for long periods of time (~20 minutes); try to break up demanding tasks so as to hold their attention, which will improve learning.
7. Our short-term memory, which is important for learning, can only cope with about seven individual items, and although some children will be able to cope with nine items, others will struggle beyond five. However, an "item" can contain chunks of information and by appropriate "chunking" it is possible to optimise a child's short term memory. For example, a child might only remember seven random letters when shown separately, but when they are written as words they can recall more letters (equivalent to seven words) because the words have allowed a natural "chunking" of information
8. Memory has both phonological and visuospatial components and it can be beneficial to work with both of these. For example, giving verbal directions to someone when they are lost as well as drawing a brief map of their rout will aid recall of the information, even after the event (when the map or verbal directions cannot be accessed, only recalled).
9. Our memory shows the "Primacy and Recency Effect". This means that things encountered at the very start and very end are most likely to be remembered.
10. Repetition is only useful if the students maintain attention and interest. An alternative to repetition is rehearsal, which involves covering the same concept or topic but in a different way. For example, teaching the water cycle through physical movement and writing a descriptive monologue of a rain drop lifespan. Both will teach the stages in the correct order but are substantially different to avoid automatic regurgitation and loss of attention.
11. Learning should be fun and interactive, this allows the student to experience the learning rather than passively receive it.

11. General Information

Occupational Health and Safety

Useful website: <http://www.education.vic.gov.au/hr/ohs/health/default.htm>

As you are all aware, health and safety is a very important issue especially in laboratory situations.

Your role as a peer mentor is also to promote best practice in lab safety. The simple rule is often to be over cautious than under and use common sense (often lacking in school children).

If at all unsure, ask the class teacher

The rules you already operate under at University are a good starting point:

- Lab coats
- Long hair tied back
- Wearing safety goggles
- Only closed shoes

See below for school example

If working with chemicals, ensure you are aware of the Material Safety Data Sheets (MSDS).

Ask the link teacher or class teacher for their school rules regarding OH & S in labs.

Lab Safety - High School lab rules example

1. Report all accidents regardless of how minor to your teacher.
2. Work in the lab only when the teacher is present or when you have permission to do so.
3. Never indulge in horseplay or behaviour that could lead to injury of others.
4. Before beginning work in lab, clean the lab bench top and your glassware.
5. Use goggles and lab aprons when instructed to do so.
6. Due to the dangers of broken glass and corrosive liquid spills in the lab, open sandals or bare feet are not permitted in the lab.
7. Learn the location and proper usage of the eyewash fountain, fire extinguisher, safety shower, fire alarm box, office intercom button, evacuation routes, clean-up brush and dust pan, glass/chemical disposal can.
8. For minor skin burns, immediately plunge the burned area into cold water and notify the teacher.
9. If you get any chemical in your eye, immediately wash the eye with the eye-wash fountain and notify the teacher.
10. Never look directly into a test tube. View the contents from the side.
11. Never smell a material in a test tube or flask directly. Instead, with your hand, "fan" some of the fumes to your nose carefully.
12. Immediately notify the teacher of any chemical spill and clean up the spill as directed.
13. Never take chemical stock bottles to the lab benches.
14. Use equipment only as directed:
 - a. never place chemicals directly on the pan balances.
 - b. use glycerin when inserting glass tubing into rubber stoppers.
 - c. be cautious of glassware that has been heated.
 - d. add boiling chips to liquid that is to be heated before heating.

- e. point test tubes that are being heated away from you and others.
15. Never taste any material in the lab
 16. Food, drink and gum are prohibited in lab.
 17. Never add water to concentrated acid solutions. The heat generated may cause spattering. Instead, as you stir, add the acid slowly to water.
 18. Read the label on chemical bottles at least twice before using the chemical. Many chemicals have names that are easily confused.
 19. Return all lab materials and equipment to their proper places after use.
 20. Upon completion of work, wash and dry all equipment, your lab bench and your clean-up area.

Source: <http://library.thinkquest.org/2923/safe2.html>

Code of Conduct

You will operate within policies and practices in respect of Child Protection, Equal Opportunities and Diversity, and, Health and Safety. This code of conduct is designed to protect you, young people and the school or college in which you are working.

Child Protection – You have a responsibility to ensure that young people are treated with respect and are free from abuse. This means:

- You must work in a place which is accessible to others and in which you can be observed working with the pupils/students.
- You must never take, or arrange to meet, pupils/students outside of school premises without a teacher present.
- You must never make any unnecessary physical contact with school/college students.
- You must report any suspicions that a young person is being abused to the school/college's named person. This is the Head Teacher/Principal unless you have been informed otherwise.

Equal Opportunities and Diversity – All young people must be treated appropriately with regard to gender, ethnic origin, religion or disability. This means:

- Providing for all young people, regardless of gender, race, ethnicity, religion, disability etc.
- Being mindful of the difficulties that some groups can face and ensuring that any obstacles to them are removed.
- Being aware of personal prejudices and stereotypical views and avoiding labels related to these.
- Valuing each young person's worth.

Health and Safety – You have a duty to safeguard your own health and safety, that of the young people with whom you work and anyone else with whom you may come into contact during your working day. This means:

- You should make sure that you are familiar with the Health and Safety Policy and practices of the school in which you work. For example, where the first aid box is kept and who is in charge of first aid arrangements and what the emergency evacuation procedures are.
- You should also make sure that the place where you work and the equipment you use is safe for you and the school students.
- If you, or a young person in your care, have an accident while on the school premises, you must ensure that a report is made to the person responsible for recording accidents at the school/college.

You should always be positive wherever possible and ensure that good behaviour and hard work are brought to the teacher's attention so that they can be rewarded. This code of conduct will help to make your time with local young people as effective and pleasant as possible.

If you have any problems or worries these should be shared with: **The In2science Coordinator.**

Support from In2science

- You can gain support and advice at anytime to help you on your placement.
- Help and advice
- Planning activities
- Money for activities
- Resources
- Funding to support trips
- 😊 Praise and encouragement 😊

Communication and What to do if there is a problem

For general queries about the class work talk to the class teacher or link teacher at the school. If there is a problem with this the feel free to contact an In2science Coordinator.

An In2science Coordinator will aim to make one general visits to you during your placement to see how things are going and this is purely in a supportive role. The aim of the Coordinator it to ensure placements run smoothly and all parties are benefiting from the experience.

The In2science Team will produce an **E-news letter** on a regular basis telling everyone involved about what others are doing. Both you and the Link Teacher will be asked to provide information about how you are being used so as to help all schools and mentors in the program. **Feel free to send in information about what you are doing for inclusion.**

In2science Group on Facebook

We have a **Facebook** group that you can use to communicate with each other during placements should you wish. Such social networking sites only work if people post items for discussion or sharing.

www.facebook.com (you will need to register with Facebook and then search for “In2science Mentoring Group”).

The **In2science Support Mentors** will regularly check the site and answer queries that you may have.

Use the Facebook group to share ideas about what you are doing in the schools and an opportunity to feel part of the In2science program.

Problems

If there are any issues regarding the placement that arise then make sure you let one of the **In2science team** know and talk through the issue with the class teacher or the Link Teacher (unless it is an issue regarding a teacher). One of the In2science Team may be able to come straight to the school or can discuss the issue over the phone. It is important to talk about problems, however minor they may seem to you, to stop them becoming bigger problems and ruining your experience of Peer Mentoring.

Evaluation of the program

There will be an evaluation of the program by all parties involved. The classroom teachers and students will be asked to evaluate the benefits of having the extra support in the lessons. You will be asked to give feedback about your experience and impact.

The class teacher will also be asked to sit down with you and give you feedback on whether you are “**competent**” or “**working towards being competent**” in the following areas using an online form:

- **Communication skills**
- **Organisational skills**
- **Problem solving skills**
- **Leadership skills**
- **Social skills**

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Communicating Expectations with Teachers

Communication between you and the teacher is an integral part of a successful placement. There needs to be a constant flow of information and ideas so both know what is happening.

It is important at the start to set clear objectives and expectations and for both the teacher and Mentor to be aware of what each other is aiming to get out of the placement.

Teachers will complete an OUTCOMES PLANNING FORM about what they wish to achieve from the program.

Please answer the following questions and **discuss** them with the teacher at the start of the placement:

1. Are you interested in teaching as a possible career? **Yes** **No**

2. How would you like to communicate with the teacher(s) on a weekly basis?

3. Would you prefer to work with the whole class, small groups or individuals that the teacher identifies?

Whole class

Selected groups

Selected individuals

4. What role would you like to take in the class?

5. Would you be willing to run some of the activities and present information to the class?

Yes

No

Maybe after a few weeks

6. Would you be willing to help organise an incursion or excursion for the students?

Yes

No

Maybe after a few weeks

7. Any other expectations you may have regarding your placement:

Appraisal of Mentor performance by Class Teacher



Mentor Name:	<input style="width: 95%;" type="text"/>
Classroom Teacher:	<input style="width: 95%;" type="text"/>
Link Teacher:	<input style="width: 95%;" type="text"/>
School:	<input style="width: 95%;" type="text"/>

Through discussion with the Mentor, please indicate your assessment of the Mentor by placing a in the appropriate box.

Skills:	Working towards	Competent	Excellent
Communication			
• Receives and responds well to a variety of information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Able to verbally communicate with students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Able to verbally communicate with teachers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Understands the importance of non-verbal communication.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Organisational			
• Is reliable and competent.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Participated in the planning & organisation of the teaching program.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Able to use time effectively	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Problem solving			
• Is able to apply knowledge and techniques to various situations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Able to utilise a range of skills, techniques and equipment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Is able to assist students grasp scientific concepts and ideas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Demonstrated initiative in the classroom.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leadership			
• Able to identify and utilise strengths of self and others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Social			
• Developed a helpful working relationship with teachers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Relates and interacts effectively with individual and groups of students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Signed: Teacher _____ Mentor: _____ Date: __/__/201__

Please note that we generally budget for up to \$10/week per mentor.

Travel Claim Form – CAR

Name: _____

DATE OF TRAVEL	JOURNEY FROM	TO	DISTANCE KM ² s

Student ID: _____

Student University email: _____

Postal address: _____

Payment will be by **cheque** or (to speed things up) by **direct payment** into a bank account.

Bank: _____

Account name: _____

BSB No:

Account No: _____

Brought Forward from overleaf

Total Kilometres Claimed: _____

	RATE Cents	AMOUNT CLAIMED
	50c	\$

Signed Mentor: _____ **Date:** _____

Signed Peer Mentoring Coordinator: _____ **Date:** _____

Office use only

Money paid: Initial: _____ Date: _____

Contact Details

In2science Team

TBC, In2science Manager
Tel: 03 9479 2523, Mobile: 0418 333 163
Email:

La Trobe University

Contact details are:

Barbara Dinsdale
Tel: 03 9479 5213 Mobile: 0412 039 292
Email: in2science@latrobe.edu.au

Monash University

Contact details are:

Catherine Higgins
Tel: 9905 4613 Mobile: 0437 625 563
Email: In2Science@.monash.edu

The University of Melbourne

Contact details are:

Fallon Mody
Tel: 8344 6948 Mobile: 0478 300 574
Email: science-in2science@unimelb.edu.au

RMIT University

Contact details are:

Megan Mundy
Tel: 9925 9717 Mobile: 0427 951 300
Email: in2science@rmit.edu.au

University of Ballarat

Contact details are:

Stephanie Davison
Tel: 5327 9373 Mobile:
Email: in2science@ballarat.edu.au

Swinburne University of Technology

Contact details are:

Dr Emily Cook
Tel: 9214 8721 Mobile: 0415 315 742
Email: in2science@swin.edu.au

Deakin University

Contact details are:

Kristy Dean
Mobile: 0407 659 594
Email: in2science@deakin.edu.au

Dealing with issues

If there are any issues regarding the placement that arise then make sure you let one of the In2science team know and talk through the issue with the class teacher or the Link Teacher (unless it is an issue regarding a teacher). One of the In2science Team may be able to come straight to the school or can discuss the issue over the phone. It is important to talk about problems, however minor they may seem to you, to stop them becoming bigger problems and ruining your experience of Peer Mentoring.