

Feedback	Supportive learning environment
<p>Feedback to students</p> <p>Establish active feedback partnerships between students and parents to find out:</p> <ul style="list-style-type: none"> • what each student already knows and can do • how each student is going • where each student needs to go next. <p>Ensure feedback is timely, ongoing, instructive and purposeful.</p> <p>Feedback may relate to misunderstandings and common alternative conceptions. In this unit this may include:</p> <p>Light</p>	<p>Differentiation</p> <p>What do your students already know and what do your students need to learn?</p> <p>Consider the individual needs of your students - including ESL, gifted and talented, and students requiring additional support.</p> <p>Start where students are at and differentiate teaching and learning to support the learning needs of all students. Plan and document how you will cater for individual learning needs.</p> <p>The learning experiences within this unit can be differentiated by increasing:</p> <ul style="list-style-type: none"> • the frequency of exposure for some students • the intensity of teaching by adjusting the group

- Students may believe that the Moon is a source of light. Explain to students that the Moon reflects light from the Sun.
- Students may believe that when we see things the light is coming from our eyes and onto the object. This will become noticeable in ray diagrams. Explain to students that light enters our eyes after reflecting off a surface.
- Students may believe that light is able to bend as reflection is often referred to in this way. Explain to students that light always travel in a straight line.
- Students may believe that reflection of light can only occur on smooth or shiny surfaces. Explain that light reflects off all surfaces and then enters our eyes, but the rougher the surface the more the light rays scatter.

Shadows

- Students may believe that shadows are created when light shines on an object and creates a dark reflection of the object. Explain that shadows are the absence of light. The light is being blocked.
- Students may believe that shadows come from people and objects. Explain that shadows are only present when there is a light source that is being

size

- the duration needed to complete tasks and assessment

For guided and/or independent practice tasks:

- student groupings will offer tasks with a range of complexities to cater for individual learning needs
- rotational groupings allow for more or less scaffolding of student learning.

<p>blocked.</p> <ul style="list-style-type: none">• Students may believe that a shadow is something that exists on its own. <p>Explain that a shadow will not exist in a completely dark place because of the lack of light.</p>	
<p>Assessment</p> <p>What do students understand and can do?</p> <p>How well do they know and do it?</p> <p>Engage:</p>	<p>Monitoring student learning</p> <p>Student learning can be monitored throughout the teaching and learning process to determine student progress and learning needs.</p> <p>Each lesson should provide opportunities to gather evidence about how students are progressing and</p>

Diagnostic assessment: designed to identify areas of weakness and strength. Diagnostic assessment may include: checklists, running records, continua and formal assessment tools

Explore:

Formative assessment: used to map/monitor learning progress during a unit of work. Formative assessment provides ongoing feedback to teachers and students. The assessment provides information on progress, and identifies and addresses areas that require further development e.g. writing folios, work conferencing, teacher questioning, learning journals, portfolios, digital portfolios, reading logs, observations, interviews, and continua such as the Year 2 Net.

Explain:

Formative assessment: used to map/monitor learning progress during a unit of work. Formative assessment provides ongoing feedback to teachers and students. The assessment provides information on progress, and identifies and addresses areas that require further development e.g. writing folios, work

what they need to learn next.

An example of this could be:

Recorded observations and discussions

- Through observations and discussions across the unit, monitor how well students can:
- classify objects as opaque, transparent, translucent
- present information collected in investigations
- understand how light is reflected, refracted and absorbed in a variety of contexts
- understand the formation of shadows

- question, predict, plan and develop scientific explanations within investigations.

Student response to activity – Periscope

conferencing, teacher questioning, learning journals, portfolios, digital portfolios, reading logs, observations, interviews, and continua such as the Year 2 Net.

Elaborate

Summative assessment: generally completed at the end of a unit of work to document the level of achievement. Summative assessment may include: written tests, oral presentations, concept maps, problem solving activities, project work, essays, formal assignments and exams. This assessment can provide feedback to the teacher about the effectiveness of the unit of work.

Evaluate:

Summative assessment: generally completed at the end of a unit of work to document the level of achievement. Summative assessment may include: written tests, oral presentations, concept maps, problem solving activities, project work, essays, formal assignments and exams. This assessment can provide feedback to the teacher about the effectiveness of the unit of work.

investigation

Check students' responses to gauge their capacity to:

- develop scientific questions and predictions under guidance
- create scientific procedures and explanations under guidance
- record observations, using diagrams as appropriate, and identify patterns in their results
- evaluate the effectiveness of a procedure
- apply their knowledge of reflection, refraction, absorption and transmission to solve a problem

<p>Education Queensland, Department of Education Training and Employment 2013, ' Assessment', Retrieved 10th November 2013.</p> <p><http://education.qld.gov.au/staff/learning/diversity/teaching/assessment.html></p> <p>.</p>	
<p>Sequence teaching and learning.</p>	<p>Teaching Plan</p>
<p>For the components of the teaching material and sequencing of this unit I have considered the case study discussed in Skamp (2012 p 201-204) and Light Fantastic (Australian Academy of Science 2008). I have individualised these resources with numerous digital resources. I have considered</p> <ul style="list-style-type: none"> • What do my students already know and can do? • What do my students need to learn? How do I teach it? <p>I will start with what students already know and set goals for the next steps for learning.</p>	<p>Please refer to lesson plans and lesson overview for further information and focus.</p>

I will provide multiple opportunities for all students to explore and consolidate ideas, skills and concepts by considering how students learn best and by using a variety of teaching strategies.

I will use the 5 E model suggested by both Skamp (2012 p 201-204) and Light Fantastic (Australian Academy of Science 2008). These phases being:

Engage.

This is designed to stimulate the students curiosity and create questioning that will both elicit understandings and create a framework for adjustments based on those understandings or misconceptions.

Explore:

The students will use hands on strategies to collect evidence and learn how to discuss observations and journal them using appropriate language and concepts. This phase lends itself to students working in groups and sharing ideas.

Engage:

Lesson 1 What is light?

Lesson 2 In the dark.

Lesson 2a Looking for light.

Explore

Explain:

Students will consider existing scientific views and deepen their own understanding. They will discuss interactions within their observations and develop scientific explanations. I will be able to monitor their understandings and provide feedback.

Elaborate:

Students will conduct an investigation that will enable them to apply and extend their theoretical understandings and extend them to a new context. I will use the students reports to assess their achievements and learning outcomes for this unit.

Evaluate:

This phase will give the students an opportunity to reflect on their learning's. I will ask the students to generate a literacy conclusion that will represent their understanding. I will then assess all of the evidences to identify the extent of

Lesson 3 How we see.

Lesson 4 How does light travel?

Lesson 5 Make way for light.

Lesson 6 Shadows

Explain:

Lesson 7 Periscope investigation

Elaborate:

Lesson 8 Properties of light

Lesson 9 Shadow puppets

the students achieving and learning outcomes for the unit.	Evaluate: Lesson 10 The Maze trick
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Reflection on the unit plan

Identify what worked well during and at the end of the unit for future planning. Reflection may include:

- activities that worked well and why
- activities that could be improved and how
- monitoring and assessment that worked well and why
- monitoring and assessment that could be improved and how

- common student misconceptions that need, or needed, to be clarified
- Differentiation and future student learning needs.

References:

Australian Academy of Science 2008, *Light fantastic*, [Rev. ed.], Canberra, ACT Australian Academy of Science

Australian Curriculum, Assessment and Reporting Authority (ACARA), *Australian Curriculum v3.0: Science for Foundation–10*
<www.australiancurriculum.edu.au/Science/Curriculum/F-10>. Retrieved 22nd September 2013

Bybee, Rodger W 1997, *Achieving scientific literacy: from purposes to practices*, Heinemann, Portsmouth, NH: Heinemann

Education Queensland, Department of Education Training and Employment 2013, 'Assessment', Retrieved 10th November 2013.
<<http://education.qld.gov.au/staff/learning/diversity/teaching/assessment.html>>

Hackling, M. W. & Prain, V. 2005. Primary Connections: Stage 2 research report. Canberra: Australian Academy of Science.
http://www.acer.edu.au/documents/RC2006_Hackling.pdf Retrieved 22nd September 2013

Skamp, Keith 2012, *Teaching primary science constructively*, 4th ed, Cengage Learning, South Melbourne, Vic