



**Southern Cross
University**

EXAMPLE123

Example Courseware Material

Study Guide

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Developed by Digital Resources

Contents

| | |
|---|----|
| Topic 1 Enhanced study material | 4 |
| Targeted output from a single source | 5 |
| Adding value | 5 |
| Future-proof design approach | 7 |
| Easy maintenance | 8 |
| Analytics | 9 |
| Topic 2 Some common conventions | 10 |
| Tables | 10 |
| Activities | 10 |
| Footnotes | 11 |
| Lists | 11 |
| Creative commons | 12 |
| Topic 3 Further examples | 13 |
| List examples | 13 |
| Activity types | 14 |
| Tips | 14 |
| Table styling options | 14 |
| Block quotes | 15 |
| Topic 4 Quizzing | 17 |
| Multiple choice and multiple answer | 18 |
| Fill in the blanks, ordering and matching | 19 |
| Drag and drop quizzes with drop zones | 19 |
| Topic 5 Mathematics | 22 |
| More examples | 22 |
| Topic 6 Video | 24 |
| Video embedded with video.js | 24 |
| Mediasite | 25 |
| Topic 7 Other interactive material | 26 |
| Embedding assessments | 26 |
| Blackboard | 26 |
| H5P | 27 |
| Interactive SVG | 28 |
| Quiz answers | 31 |
| Activity solutions | 32 |
| Activity feedback | 34 |

Topic 1

Enhanced study material

Welcome to our example project. It demonstrates some of the capabilities of the system that SCU's Digital Resources team have been developing for production of study material (and potentially any other content).

Benefits

There are several benefits derived from using such a system, including:

- responsive design for multiple devices
- targeted content to different output media (e.g. HTML vs PDF) and audiences (e.g. on-campus vs online students)
- detailed user analytics
- incorporation of innovative technology
- detailed version control
- efficient maintenance
- consistency of branding/style
- allowing DR to focus on adding value (e.g. producing quality graphics and rich interactive content)
- minimise and automate repetitive tasks
- update branding quickly and universally when required
- well-composed, semantic markup
- accessibility features
- future potential to embed the content creation into an online portal (such as a wiki) giving authors greater control and responsibility for content.

You're looking at it!

This example has been created using the system. The navigation is automatically generated based on the heading structure of the source material.

Please browse around to see examples of what can be incorporated, including interactive graphics, video content with transcriptions, mathematics markup, embedded quizzes and more.

This project is fluid and constantly evolving and we welcome input that will assist us in making improvements to enhance the learning experience for students (and other audiences).

Targeted output from a single source

The system is designed to create published output for multiple platforms using single source HTML documents. The system allows the source to be marked up in a way that allows sections of the document to be targeted both to separate media (for example HTML and PDF) and separate audiences (for example on-campus students and online students).

To demonstrate:

This block quote is only delivered to the PDF output; check the HTML to see the difference.

The system incorporates several **conventions** that have been historically used in SCU study material, such as:



Activity blocks

This is an activity block, or panel, which is used to direct students to particular tasks or activities.

This is often used to indicate supporting reading material, videos to watch, web tasks to undertake, case studies, feedback and a range of other activities.



Reading

Reading 1.1 This is an example of a Reading Activity panel.

In a similar way to enabling divergent content for different media output, we can also split content to target different audiences (for example, online and on-campus audiences who may be tasked with different activities due to availability of resources). In any case where the source material indicates divergent content for different audiences, multiple copies of the site will be automatically generated with the appropriate content included for each audience.

Adding value

By automating some of the traditional work that the DR team has done (typesetting etc.), we can look forward to providing services that add real value to your material, such as creating professional, consistently branded imagery and innovative, interactive material.

Graphics

The DR team can add value to your material by creating striking graphics in SVG and other formats. SVG is a scalable format which allows for infinite zoom without loss of quality – it is ideal for non-photographic style graphics.

Keeping artwork “in the family”

Below, and throughout this example project, are examples of graphics created by the team. A template has been deployed to create graphics that display consistently, within a familiar brand. In general, the graphics have been provided as SVG where appropriate.

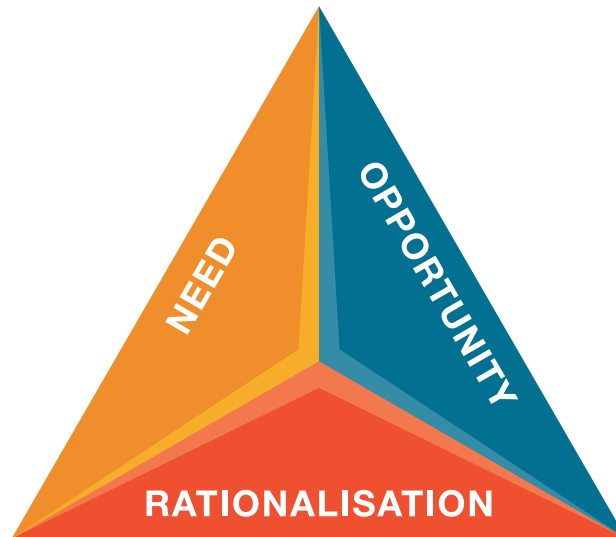


Figure 1.1 A simple graphic, zoom in to view clarity! © SCU, 2016

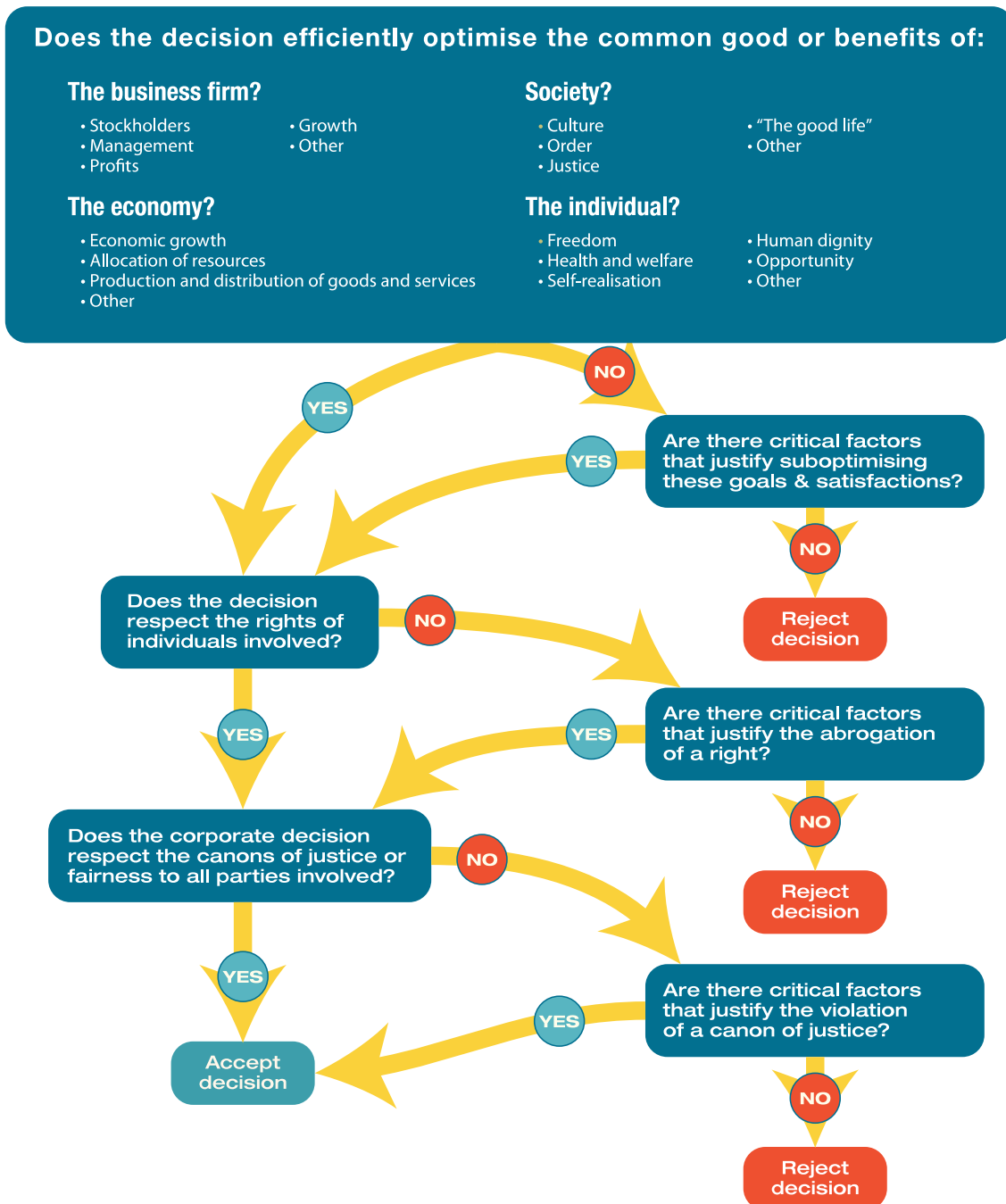


Figure 1.2 This is a figure caption, describing more complex flowchart

Future-proof design approach

Delivery via the Internet offers many advantages over traditional publishing, allowing content to become interactive and to engage audiences in evolving ways.

Immediate feedback can be automatically given, perceived risk of failure is mitigated, and content can be tailored to the individual.

Separating content, style and behaviour

Gone are the days when content was cluttered with meaningless information about how it should appear and what types of interaction could occur. Conventions are always evolving which are designed to increase clarity while creating richer experiences for users.

We can create material which is optimised for different devices, giving the user the optimal experience in a range of environments.

We're thinking about what you need

Cascading Stylesheets (CSS) have been set up to add style (formatting) to a range of common elements. Benefits of using CSS include meaningful markup of content and the ability to simply and universally update the style of elements throughout the content.

Consideration has gone into what elements are commonly used and common adaptations that are used in study material. Most publishing conventions are addressed by Web Specifications generated by global organisations, however, we are able to implement (and have done) extensions to base specifications where it is useful.

A simple example

Here are a couple of examples of block quote elements. Note that the styling is different in the HTML and PDF output. This is by design; the HTML is aimed at consumption on screen, whereas the PDF is generated in a more traditional format as it is a portable format and maintains the ability to print professional documents as per tradition.

This is an example of a standard block quote.

— (An example citation, 2009, p. 19)

Certain documents (such as for the Law School), require a more traditional approach:

... an example of a quote without decoration

— (Example citation, 2013, p. 7)

Easy maintenance

We use git version control to save the state of a project at regular intervals during its development.

This means that one source of material serves as an ongoing current record of a project (for example, a unit Study Guide), and that any saved point in the history of the project can be recovered or compared against.

No more document confusion

This process eliminates the need to record multiple copies of documents, which has been a traditional source of confusion and time-wasting in project development of this type.

Multiple operators on a single project

It also means that more than one person can work on a project at the same time and a relatively simple process is available to merge the work and manage any potential conflicts that may arise.

Analytics

We have implemented analytics which allow us to see how people are using the content.

We can see what content is being accessed and what interactions are taking place, such as:

- what format people are accessing, and how often
- page interactions, such as scrolling, engagement time etc.
- video interaction
- user roles and other specific data.

This information can be used to discover what's working, and help us refine our content to be better in the future.

Read on in the other topics to see other examples.

Topic 2

Some common conventions

It is very common to use tables to present data in a meaningful way.

Tables

Here's a simple example table.

Table 2.1 This is a table caption

| Table | Header | Cells |
|-------------------------|--------------------------------|--|
| This table uses | alternate shading on its rows | and a hover effect for mouse-over interactions |
| Tables can be as simple | or complex | as required |
| As a rule | tables should be used to | represent meaningful data (unlike this) |
| The next topic | includes examples ¹ | of some other available styling options |

Activities

Very often we interject an activity into our content to break things up and illustrate a concept in a different way.

Web activity

Note the 'web' activity icon above.

Visit <http://example.com>.

There are several types of activity.

See 'Activity types' for more information.

1. Footnotes are shown inline as popovers (HTML version) and also at the bottom of the page (PDF version) or document (HTML version).

A level three heading

Note that this heading is not included in the auto-generated navigation panel.

Here's another example graphic:

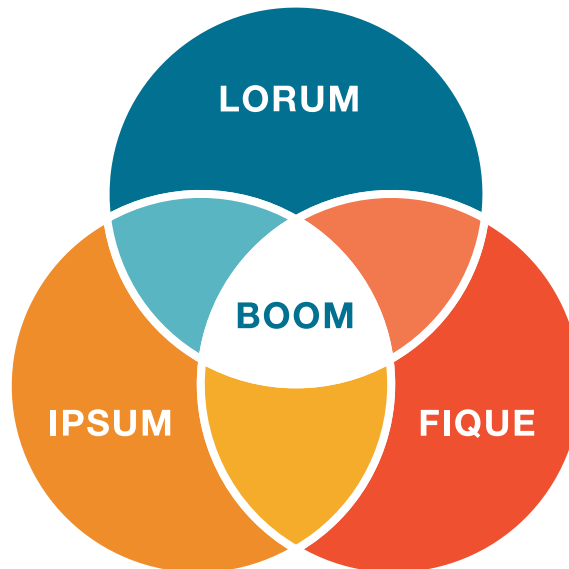


Figure 2.1 Another example caption

Footnotes

Footnotes are commonly used in study materials; there's one in the table above.

Footnote links are styled differently to normal hyperlinks and employ a popover effect ² for the online (HTML) version of the material.

Lists

Unordered and ordered lists are a very common way to summarise and outline information:

- several levels of list can be accommodated:
 - lists can be unordered (e.g. bullet lists – like this one)
 - and lists can be nested within lists:
 - i. this is an ordered list
 - ii. this list uses lowercase roman numerals
 - iii. other common options include, lowercase alpha characters (a, b, c...) and numbers (1, 2, 3...)
- ordered lists can be automatically numbered
- or they can be manually numbered to accommodate complex numbering systems (e.g. 2.1.0.3...).

2. The numbers in the list at the end of the document link back to the anchor location in the text (particularly useful in longer documents).

Creative commons

We have built in the facility to easily include creative commons licencing icons.



Figure 2.2 An image available licenced under creative commons

Topic 3

Further examples

List examples

Manually numbered references

- 1.1 Mintzberg, H and Lampel, J (1999). Reflecting on the strategy process, *Sloan Management Review*, 40(3): 21–30.
- 1.2 Twerig, P (1900). *The way up and beyond, or thereabouts*, 11–14.

A more complex list

The following list show examples of several types available and complex nesting:

1. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Earum provident voluptatibus, libero quis recusandae iste deserunt beatae cumque vitae sint.
2. Maxime ratione dolor velit laudantium minima voluptatum architecto. Ullam, odio cumque. Amet quia illum, harum maiores ipsum, at sequi magnam.
 - Lorem ipsum dolor sit amet, consectetur adipiscing elit. Quidem, quo.
 - Lorem ipsum dolor sit amet.
 - Lorem ipsum dolor sit amet, consectetur adipiscing.
 - Blanditiis explicabo in laboriosam laborum nulla rerum.
 - A aperiam, explicabo illum magni neque officiiis.
 - Cum dolore explicabo quibusdam vero.
 - Aliquid id nam nesciunt praesentium quo tenetur voluptate. Animi, veritatis.
 - Dolor est illum ipsam laborum minus nihil nisi quidem. Asperiores.
3. Dolore, veniam, ullam. Omnis adipisci, non, molestias dolorum quam at quis sint, eligendi similique alias commodi soluta rerum veniam, voluptatem.
 - a. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Dolorum, cumque.
 - b. Ab voluptatum tenetur quos est blanditiis sequi cumque omnis magnam!
 - i. consectetur adipiscing
 - ii. laudantium minima
 - ii.2.5-a io ducimus iure sapi
 - ii.2.5 amet, consectetur adipiscing
 - iii. commodi soluta rerum
 - c. Quisquam ipsum quos quam sint laborum porro assumenda inventore dolorem!
4. Reiciendis hic minus, ab officia temporibus dicta voluptas esse obcaecati provident repellendus velit accusamus non maiores iusto officiiis error nulla.

Activity types

Different types of activity can be identified with different icons. While these options are available, and indeed tailor made solutions can always be created, we have endeavoured to limit options to a core of conventions that will be useful to a wide range of material.

Web activity

A web activity.

Case study

A case study activity.

Other possibilities

- activity 
- reading 
- web 
- think 
- reflect 
- feedback 
- case-study 
- video 

Tips



If you need a section to stand out as a helper or piece of advice, a tip block is ideal!



A tip block can also appear in a 'well', which can be useful if you need it to really stand out from the flow of the main content.

Table styling options

We have anticipated a range of styling options that may be a note for the end, useful for tables, such as cell borders of various types and highlighting. As always, it is about finding the balance between necessary complexity and beneficial consistency.

A somewhat undesirable, yet illustrative example:

Crazy table example Don't do this!

| | Heading | Header |
|-------------|---------|---------------|
| Side header | Item 1 | Alternative 1 |
| Side header | Item 2 | Alternative 2 |
| Side header | Item 3 | Alternative 3 |
| Side header | Item 4 | Alternative 4 |
| Side header | Item 5 | Alternative 5 |

Block quotes

Here is an example of a typical block quote.

— Albert Einstein

This block quote has no *decoration* applied. Some texts (for example citations in Law units) require a more subtle visual approach.

— Benjamin Franklin

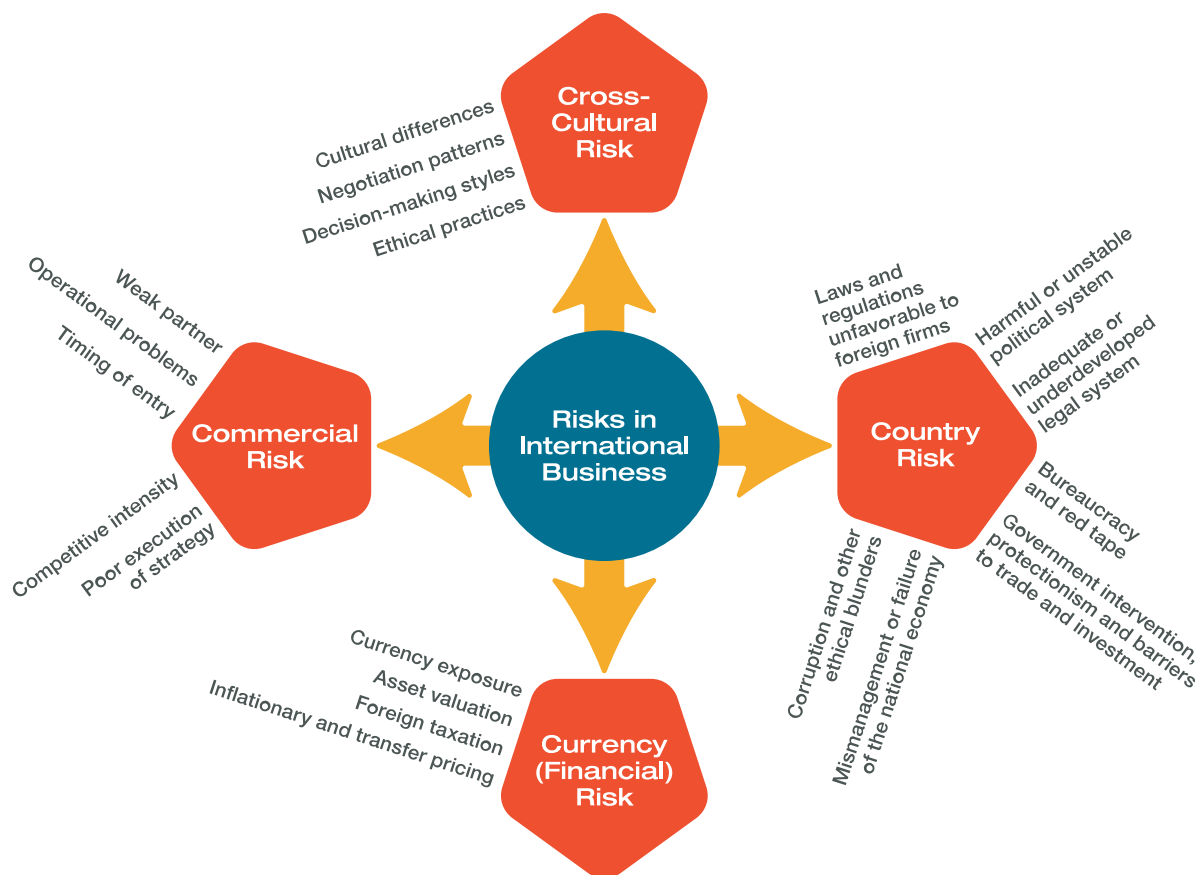


Figure 3.1 Another example graphic

 **Activity**

Collect your thoughts and imagine the possibilities!

Topic 4

Quizzing

Quizzes are fun, and you can learn something as well!

We have developed a series of self-assessing quiz types that can be easily and rapidly added to study material using simple HTML markup. This page demonstrates the types of quiz currently available using this process.

These quizzes are automatically reformatted for use in the PDF environment, with the answers and solutions blocks appended as extra sections at the end of the document. Hyperlinks are provided between the questions and their respective answers.

Multiple choice and multiple answer



4.1 A little quiz

This multiple choice quiz demonstrates that separate feedback can be shown to the user for different options, in any combination.

Q1. Which country is commonly called America?

- a) Egypt
- b) England
- c) Australia
- d) The USA. With a long description added ... lorem ipsum dolor sit amet, consectetur adipiscing elit. Alias amet architecto autem dicta earum error eum exercitationem facere laboriosam nesciunt nihil non odio optio possimus provident quos, repudiandae, velit voluptates!

Q2. Which country is commonly called America? Add a bunch more text to this element to make it nice and long to allow for wrapping around to another line on the page.

- a) England
- b) USA
- c) Australia

The following multiple answer quiz shows that we can tailor feedback for partially complete answers.

Q3. Which counties are not called America?

- a) France
- b) United States
- c) USA
- d) Australia
- e) Africa
- f) England

Fill in the blanks, ordering and matching



A separate quiz

Q4. Fill in the blank/s:

This is where you _____ in the _____.

Q5. Sort this list into the correct order:

- a) Item 2 ipsum dolor sit amet, consectetur adipiscing elit, repellat, unde vel?
- b) Item 1 ipsum dolor sit amet, consectetur adipiscing elit. Adipisci dolorum est ex illo, molestiae molestias placeat quidem quo, repellat, unde vel?
- c) Item 5 Adipisci dolorum est ex illo repellat, unde vel?
- d) Item 4 Adipisci dolorum est molestias placeat quidem quo, repellat, unde vel?
- e) Item 3 Adipisci dolorum est ex illo, molestiae molestias placeat quidem quo, repellat, unde vel?

Q6. Reorder the lists to match:

- | | |
|--|--|
| a) Item 1 Lorem ipsum dolor sit amet, consectetur adipiscing elit. | a) Item 3 Lorem ipsum dolor sit amet. |
| b) Item 4 Lorem ipsum dolor sit amet. | b) Item 2 Lorem ipsum dolor sit amet, consectetur adipiscing elit. Dignissimos esse harum libero quos ratione ullam. |
| c) Item 3 Lorem ipsum dolor sit amet. | c) Item 4 Lorem ipsum dolor sit amet. |
| d) Item 2 Lorem ipsum dolor sit amet, consectetur adipiscing elit. Dignissimos esse harum libero quos ratione ullam. | d) Item 1 Lorem ipsum dolor sit amet, consectetur adipiscing elit. |

Drag and drop quizzes with drop zones



Making it drag and drop

Q7. Fill in the blank/s:

This is where you _____ in the _____.

blanks
emptiness
stuff
empty shell
shove
fill
hole



Stacking cards

Q8. Associate the items on the right with the appropriate groups on the left:

- | | |
|------------|--|
| a) Stack 1 | a) Try Stack 2 Lorem amet, consectetur ipsum dolor sit adipisicing elit. |
| b) Stack 2 | b) Try Stack 3 Lorem ipsum adipisicing elit. |
| c) Stack 3 | c) Try Stack 3 Lorem ipsum amet, consectetur dolor sit adipisicing elit. |
| | d) Try Stack 2 Lorem ipsum dolor sit amet, consectetur adipisicing elit. |
| | e) Try Stack 3 Lorem ipsum dolor sit amet, consectetur adipisicing eli tdolor sit amet, consectetur. |
| | f) Try Stack 1 Lorem consectetur adipisicing elit ipsum dolor sit amet, Facilis, omnis. |
| | g) Try Sack 1 Lorem ipsum dolor sit amet. |



Stacking blocks

Q9. Associate the items on the right with the appropriate groups on the left:

- | | |
|------------|---|
| a) Stack 1 | a) Try Stack 3 |
| b) Stack 2 | b) Try Stack 1 |
| c) Stack 3 | c) Try Stack 2 |
| | d) Try Stack 2 with longer text demonstration |
| | e) Try Stack 3 |
| | f) Try Stack 3 |
| | g) Try Stack 1 |
| | h) Try Stack 3 |



Guess your weight

Weight = $-100.10 + 1.01 \times$ your height in centimetres = your weight in kilograms.

See feedback 1 on page 34.



Activity 2

Jenna, a university student, has \$20 a week to spend. She spends it either on junk food at \$2.50 a snack, or on petrol at \$2 per litre. What is the trade-off between junk food and petrol? (i.e. how much petrol does she give up for each snack?). How does her budget constraint change when:

1. a kind relative started sending her an additional \$20 per week?
See solution 1 on page 32.
2. the price of a junk food snack fell to \$2.00?
See solution 2 on page 32.
3. the price of petrol rose to \$2.50 per litre?
See solution 3 on page 33.

The attached interactive Excel spreadsheet ([images/eco82001_budget_line.xlsx](#)) **budget line** can be used to answer these questions.

Topic 5

Mathematics

Mathematical equations can be elegantly included in content using a range of markup languages, including LaTeX and MML.

Using the MathJax (<https://www.mathjax.org/>) javascript library, these equations can be typeset to a high standard and incorporate useful functionality, such as zoom and language translation.

This page includes a few examples which are embedded using LaTeX mathematics (<https://en.wikibooks.org/wiki/LaTeX/Mathematics>) markup, which is efficient and powerful.

$$\sum_{i=1}^n (X_i - \bar{X})^{-2} \tag{77}$$

[View the underlying LaTeX markup.](#)

Equations can be presented as blocks (as above), or inline with text, for example, consider the sum \sum of variables x and y , then add 3, or perhaps 432 would be superior.

More examples

Here some more examples. Online users can right-click on the equations to access various options including zoom triggers and translation.

Matrix

$$\begin{pmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{pmatrix}$$

Quadratic formula

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Where:

a = a value

b = another value

c = a third value

Others

$$\frac{\partial^2 \Omega}{\partial u \partial v}$$

$$\lim_{x \rightarrow 0} \frac{e^x - 1}{2x} \stackrel{\left[\frac{0}{0} \right]}{H} \lim_{x \rightarrow 0} \frac{e^x}{2} = \frac{1}{2}$$

(999)

**Activity**

Learn HTML syntax for writing equations in LaTeX!

Topic 6

Video

Video is a great educational tool (when used well).

There are numerous ways of including video; we have focused on the following:

1. YouTube embedding
2. Video.js javascript library
3. Mediasite.

YouTube is very well set up to deliver video content and captures detailed analytics about user interaction with video. However it has potential drawbacks, being an external tool.

Video.js is a javascript library which enhances HTML5's native `<video>` element, creating an elegant interface for interacting with locally embedded video content. It includes the capacity to embed closed-captioning (subtitles), full screen viewing, etc.

DR has extended its interface to add a toggle button for a written transcript of the video.

We have also addressed other issues, such as potential conflicts when several videos are embedded on one page. The examples below show the same video embedded twice. Note that if a video is started while another is playing, the previously playing video stops to avoid conflict.

Video embedded with video.js

Please note that these videos are only available in the HTML version of this study guide. A transcript is provided below for PDF output.

Ellen's story

Video transcript

Well when I got accepted into university it was a bit of a fluke and I never ever thought that I would come to uni because I thought I'd be a checkout chick forever.

That was sort of my life goal so to be at university was a big shock for me.

I remember when my mum drove me to uni I thought it was going to be fabulous, I had all these expectations and then I got there and we set up my bedroom and it kind of looked like a gaol cell so that was a bit hard.

But we set it up and I thought 'Yep, life's going to be great', 'I'm going to meet all my best friends', 'I'm going to have great times' and then reality kicked in as soon as my mum left.

I was in a six bedroom room and there was no one else there so I locked the door, locked myself away and cried for three days straight. I've never felt so low in my life,

I felt lonely and I was homesick. I felt so homesick I wanted to die, it was horrible.

And then after about three days of crying my eyes out i eventually unlocked the door and walked out into the big wide world and I met all these amazing people that changed my life forever and really allowed me to figure out who I was with the experiences that I had with them because meeting people and getting to know people and sharing life with people is really important to me and feeling that personal connection.

So that was definitely something that got me through and then also having a connection to the campus that I was on by being involved in volunteering on campus at events and meeting like minded students and going to the library to study, instead of locking myself in my room, where you get to meet people and share things and really feel like you belong here on the campus that was something that really helped me.

A random blockquote, to break things up a bit.

Mediasite

Due to the fact when Mediasite initialise on loading and can interfere with the user experience when doing so, we have developed a simple system for displaying placeholders which will load the video when clicked, as demonstrated below (only available in the HTML version; fallback text can be provided in the PDF).

Reflect

What are your thoughts about the Digital Resources team's approach to publishing content?

What further enhancements would you like to see?

Topic 7

Other interactive material

In addition to the core functionality of the SG2Web system as described in the preceding topics, it is also possible to include interactive content either packaged from other sources, or bespoke content created by the Digital Resources team.¹

Embedding assessments

Here, we are experimenting in embedding various external content into the page; native HTML quizzes, Blackboard assessments, external assessments (h5p), discussions etc.

There are various options available when it comes to creating engaging and interactive content, including:

- Blackboard quizzes
- Articulate (<https://articulate.com/>), Captivate (<http://www.adobe.com/au/products/captivate.html>) and other eLearning tools (<https://elearningindustry.com/the-ultimate-list-of-html5-elearning-authoring-tools>)
- h5p (<https://h5p.org>) and other third party options
- interactive SVG.

Blackboard

Blackboard assessments (tests, quizzes, assignments etc.) have the benefit of native inclusion in the LMS, which means that results are automatically stored in Grade Centre.

There are several quizzing options, including essays, fill in the blanks, hotspots and a host of others (https://help.blackboard.com/Learn/Instructor/Tests_Pools_Surveys/Create_Tests_and_Surveys).

A potential downside to using Blackboard assessments directly in the study material is presentational. As they are delivered within the Blackboard framework, a lot of extraneous visual clutter is included (branding, navigation etc.).

We have made some progress using javascript to remove some of this clutter, which enables us to embed these resources in a somewhat seamless way.



Blackboard assessment

This quiz requires online access. Please access the HTML version of this material to partake.

1. An extra footnote in another topic to test renumbering.

H5P

H5P (<https://h5p.org/>) includes a collection of tools for creating attractive, interactive content.

It is very easy to author a range of HTML5 content in a wide variety of types, including:

- Interactive video (<https://h5p.org/interactive-video>)
- Memory games (<https://h5p.org/memory-game>)
- Arithmetic quizzes (<https://h5p.org/arithmetic-quiz>)
- Speak the words (<https://h5p.org/speak-the-words>)
- Drag and drop (<https://h5p.org/drag-and-drop>)
- Many others. (<https://h5p.org/content-types-and-applications>)

Here are some examples:



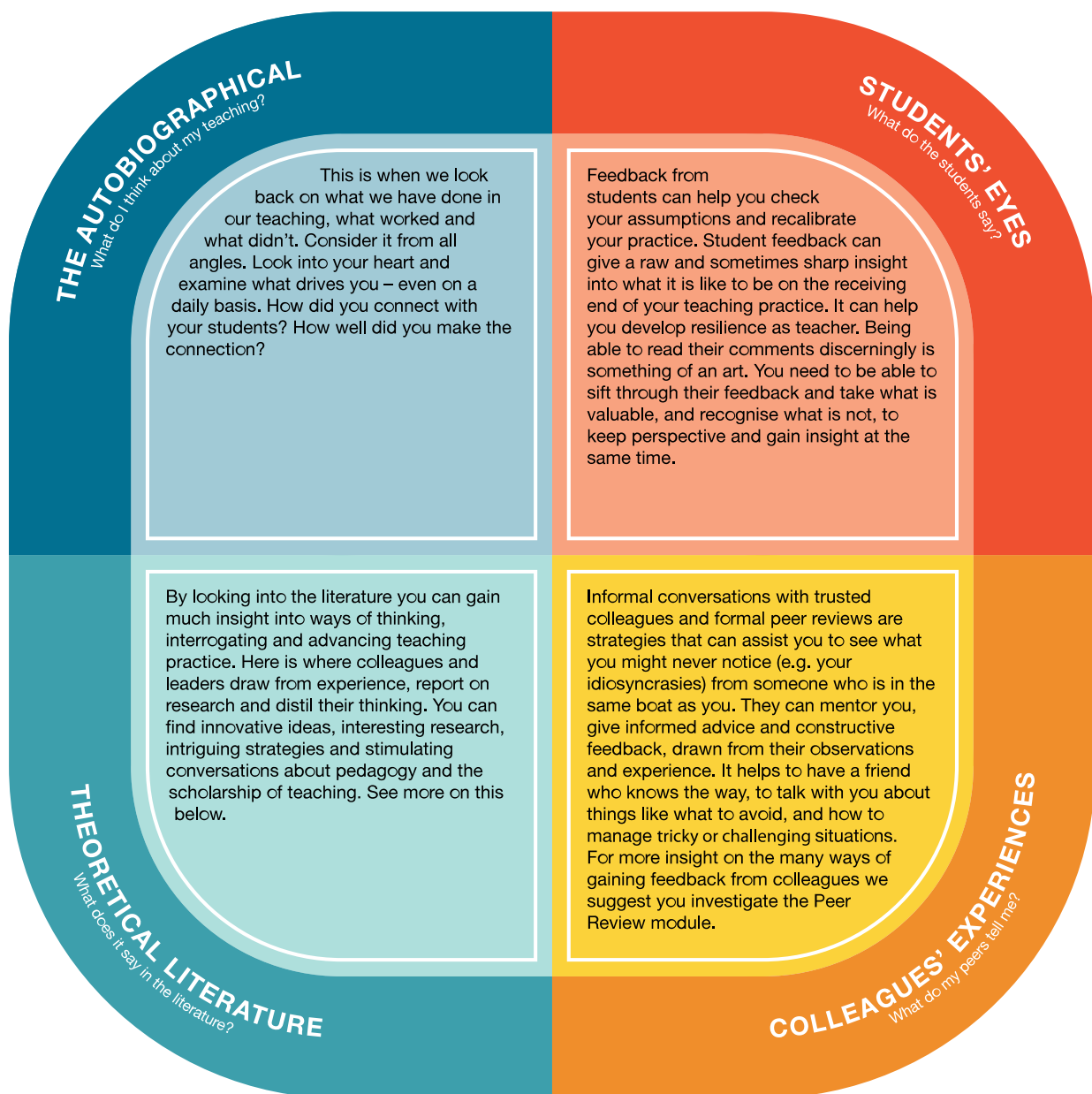
H5P content

These activities require online access. Please access the HTML version of this material to partake.

Interactive SVG

In the online environment, the following SVG graphics are interactive, reacting to the mouse passing over various areas of the graphic. A static fallback version is also included for the PDF output.

These examples have been created by the Digital Resources team.



Graphic created by Kurt Otto



Graphic created by Kurt Otto



Life balance

Use the sliders below to indicate how many hours per week you dedicate to each area. When done, click the 'Get feedback' button to see how you fare.



52 hours per week

Your personal feedback:

FAMILY

Your family commitments are not too demanding. Maintaining connections is important to your wellbeing.

STUDY

Unless you're only studying one subject, you need to schedule in more time to study. Each subject requires at least 10 hours of study time per week, which includes class sessions and independent study.

WORK

Many students take on part-time work to support themselves during their studies. Up to 10 hours of work should be manageable while you study.

FITNESS

It's recommended to spend an hour a day on your fitness to keep you physically and mentally healthy. Perhaps review what you have planned to ensure it's manageable with all your other commitments.

WELLBEING

Doing things that you enjoy and that make you feel good are vital to your emotional and mental health. If possible, consider increasing the time that you spend doing things you enjoy.

SOCIAL

Research tells us that when we spend time in the company of people we enjoy, our mental and emotional health benefits. This in turn can benefit your study life. Keep maintaining these connections and enjoying your social life, while ensuring you have enough time for your other commitments.

SLEEP

If you're sleeping fewer than 30 hours of per week, you will be sleep deprived and not able to perform at your best. Aim for 7-8 hours per night to give your brain the rest it needs to succeed in your studies and manage your other life commitments.

A screenshot of the interactive activity, available in the HTML version of this document.

Quiz answers

Q1. d

Q2. b

That is correct, and there is only a response for a correct answer.

Q3. a, d, e, f

Q4. Fill in the blank/s:

This is where you **fill** in the **blanks**.

Q5. b, a, e, d, c

Q6. $a \rightarrow d$, $b \rightarrow c$, $c \rightarrow a$, $d \rightarrow b$

Q7. Fill in the blank/s:

This is where you **fill** in the **blanks**.

Q8. $a \rightarrow f, g$

$b \rightarrow a, d$

$c \rightarrow b, c, e$

That is cardable correct.

Q9. $a \rightarrow b, g$

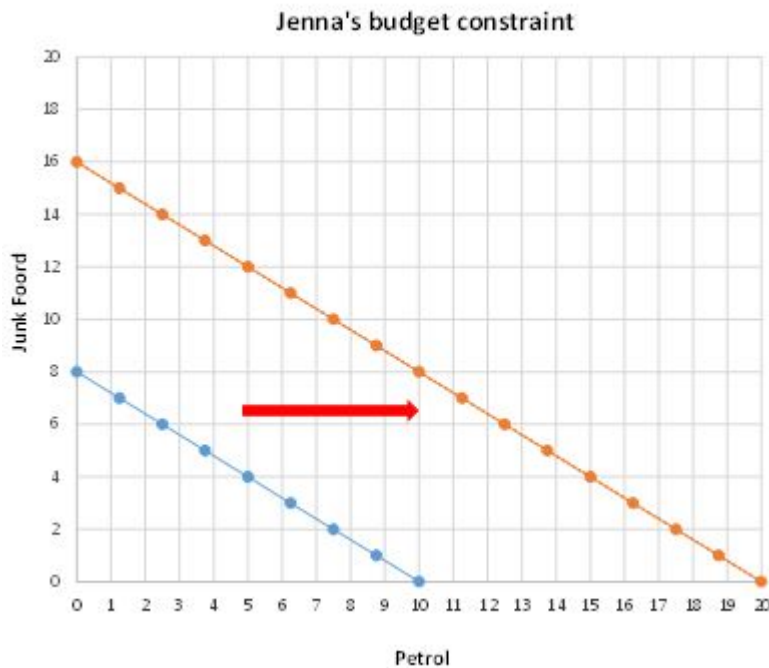
$b \rightarrow c, d$

$c \rightarrow a, e, f, h$

Activity solutions

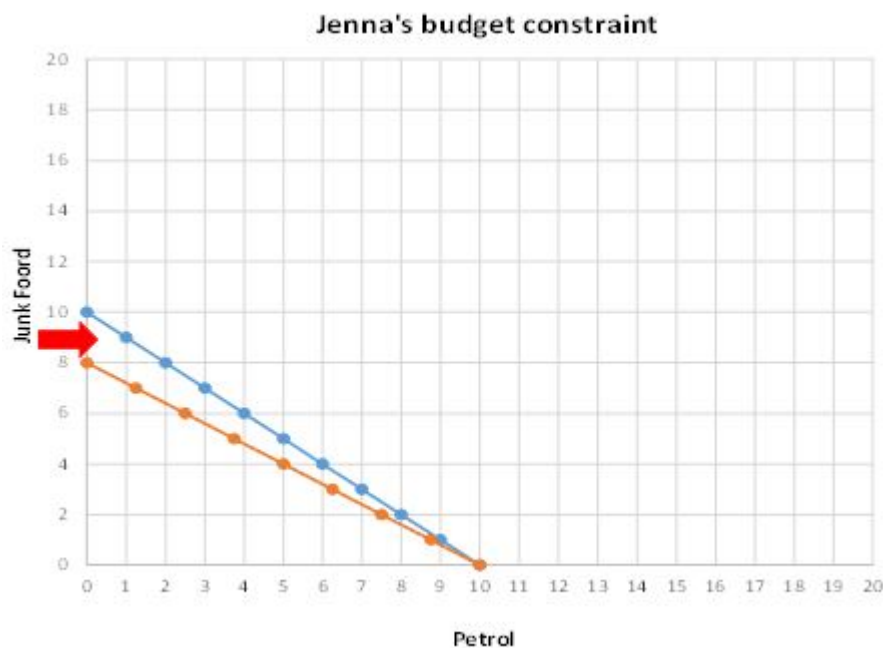
Solution 1.

With the extra \$20 she can buy more junk food or petrol, or more of both goods and the budget constraint shifts out. It is still the case that if she buys one snack she must give up 1.25 litres of petrol.



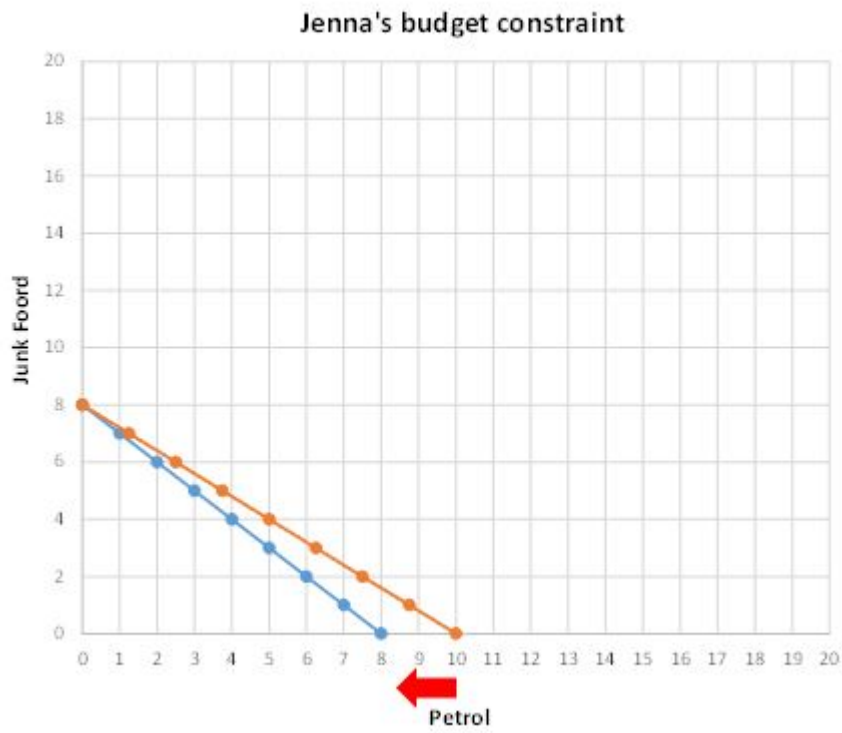
Solution 2.

When the price of a snack is \$2 she now gives up 1 litre of petrol for every snack, so snacks are relatively cheaper. This is reflected by a pivot of the budget constraint.



Solution 3.

If the price of petrol rises to \$2.50 a litre and the price of a snack is \$2.50, she can buy 1 litre of petrol for every snack. This is reflected by a pivot of the budget constraint.



Activity feedback

Feedback 1.

Did your weight get calculated correctly?