
## Teaching notes

### How to use this resource

This resource, *Laptop wrap: Talking trigonometry*, is designed to support student use of laptops in both online and offline classroom environments.

The mix of online and offline resources and tasks is intended to promote student understanding of trigonometry. Students work mathematically and build their capacity to use a variety of information and communications technologies.

### Explore

In this section students explore basic trigonometry concepts with two slideshows that explain identifying sides, the basic trigonometry ratios and inverse trigonometric ratios, and then can use a simple interactive Geogebra worksheet to practice identifying opposite and adjacent sides.

Students can also read about the history and development of trigonometry and astronomy.

### Your tasks

Students should click on either the icons or the hyperlinked text to view each particular task in a pop-up window. Links have been provided if additional resources are required to complete the task.

Brief student instructions for using particular software programs are provided with each task. Other tutorials offering additional assistance are also available online.

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| **Trigonometry words**Wordle | Students create a word cloud of familiar trigonometry terms. * The screenshot may be a useful image in Task 2.
* If students are unsure of the meaning of trigonometry words they can use [Visuwords](http://www.visuwords.com/search.php) to help define them.
* This task is designed as a 15-minute introduction. However, it is also useful to spend time discussing the word meanings.
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| **Where could you use trigonometry?**Wikispace, padlet | Students research practical applications of trigonometry, devise a local scenario and share it on a wiki.* You could create an online wiki (eg [PBWorks](https://plans.pbworks.com/signup/edubasic20), [Wikispaces](http://www.wikispaces.com/site/for/teachers)) and then have it [unblocked](https://detwww.det.nsw.edu.au/it/ictservicedesk/servoffer/filtering.htm) by the DET web filtering team, or create a padlet on padlet.com and share the page with students.
* They could also be shared on a school intranet or learning management system such as Moodle or Microsoft SharePoint.
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| **Create a slideshow** Photoshop, Fireworks  | Students choose and solve a practical trigonometry problem, taking and enhancing a series of pictures to create a slideshow of how they used trigonometry and tools to find a solution. * It may be helpful to identify roles such as photographer, measurer, recorder, editor if completing the project in groups.
* Useful Photoshop features: >*Image(Crop, Resize), >Right Click on tools menu (Text, Line tool), >Layer(Flatten image), >Save (.jpeg)*
* [Marking guidelines](file:///C%3A%5CLRR%20Resources%5C8888%20Talking%20Trigonometry%20TODO%5Cdocuments%5CMathsSlideshowRubric.docx) are provided for your consideration.

**Note:** Students can also make a slideshow in Photoshop, Google Slides, or PowerPoint. |

*\*Suitable for Stage 5.3 students*

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| **Trigonometric functions**GeoGebra | Students look at a variety of GeoGebra applets to transform their understanding from lines/angles to functions and periodic waves. * A class narrative would be the best way to provide the underlying thread for this investigation.
* ***Notes***:
	+ In the right triangle applet, both the slider and point B can be moved to assist with the narrative.
	+ The graphs can be discussed holistically at this point without using language like period/amplitude/phase.
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### Quality Teaching Framework

This resource has been developed to support pedagogy and improve student outcomes based on the NSW Quality Teaching Framework, with particular focus on the following elements.

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| ***Intellectual quality*** | ***Quality Learning Environment*** | ***Significance*** |
| 1.1 | Deep knowledge | **[x]**  | 2.1 | Explicit quality criteria | **[x]**  | 3.1 | Background knowledge | **[x]**  |
| 1.2 | Deep understanding | **[ ]**  | 2.2 | Engagement | **[x]**  | 3.2 | Cultural knowledge | **[x]**  |
| 1.3 | Problematic knowledge | **[x]**  | 2.3 | High expectations | **[x]**  | 3.3 | Knowledge integration | **[x]**  |
| 1.4 | Higher-order thinking | **[ ]**  | 2.4 | Social support | **[ ]**  | 3.4 | Inclusivity | **[x]**  |
| 1.5 | Metalanguage | **[ ]**  | 2.5 | Students’ self-regulation | **[ ]**  | 3.5 | Connectedness | **[x]**  |
| 1.6 | Substantive communication | **[x]**  | 2.6 | Student direction | **[x]**  | 3.6 | Narrative | **[x]**  |