**Angles: types of angles: Part 1**

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| Year level  Strand(s)  Lesson length  CD Code | * Year 4 * Measurement * 45 mins * [AC9M4M04](https://v9.australiancurriculum.edu.au/f-10-curriculum/learning-areas/mathematics/year-1_year-4/content-description?subject-identifier=MATMATY4&content-description-code=AC9M4M04&detailed-content-descriptions=0&hide-ccp=0&hide-gc=0&side-by-side=1&strands-start-index=0&subjects-start-index=0&view=quick) |
| Lesson summary | In this first of two lessons, students explore ways to compare angles and recognise the names of different types of angles, including right, acute, obtuse, straight, reflex and revolution.  In a follow-up lesson, Angles: chalk design, students create their own chalk designs in the style of a stained-glass window that includes different types of angles. |
| Learning intention | We are exploring properties of different angles. |
| Success criteria | By the end of this lesson, students can:   * recognise that angles are measures of turn * name the different types of angles * draw and label angles and describe their properties * recognise the relationship different angles have to a right angle * identify angles in everyday situations * develop efficient strategies for recognising, representing and comparing angles. |
| Why are we learning about this? | Angles are all around us. They have real-life applications in design and in the way we describe and classify movement and shapes. Yet, all too often, we only think about angles when we are sitting in a mathematics lesson. These lessons have been designed to help students recognise that angles are present in the world around them and start to help them explore the relationship angles have with each other. |
| Prerequisite student knowledge and language | Prior to this lesson, it is assumed that students have knowledge of:   * angles as measures of turn * how to compare angles to right angles (greater than or less than) in everyday situations * how to identify patterns of geometric shapes in the environment. |
| **Resources** | * Lesson plan (Word) * Teacher’s slides (PowerPoint) * Scissors, split pin and card to create an angle checker |

Curriculum information

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| Achievement standard | By the end of Year 4, students compare angles relative to a right angle using angle names. |
| Content description(s) | Students estimate and compare angles using angle names including acute, obtuse, straight, reflex and revolution, and recognise their relationship to a right angle. [AC9M4M04](https://v9.australiancurriculum.edu.au/f-10-curriculum/learning-areas/mathematics/year-1_year-4/content-description?subject-identifier=MATMATY4&content-description-code=AC9M4M04&detailed-content-descriptions=0&hide-ccp=0&hide-gc=0&side-by-side=1&strands-start-index=0&subjects-start-index=0&view=quick) |
| General capabilities  Cross-curriculum priority | General capabilities  Numeracy   * Understanding geometric properties [Level 4](https://v9.australiancurriculum.edu.au/f-10-curriculum/learning-areas/mathematics/year-1_year-4/general-capability-snapshot?subject-identifier=MATMATY4&content-description-code=AC9M4M04&general-capability-code=N&element-code=NM&sub-element-index=0&sub-element-code=NMUGP&detailed-content-descriptions=0&hide-ccp=0&hide-gc=0&side-by-side=1&strands-start-index=0&subjects-start-index=0&view=quick)   Critical and Creative Thinking | Inquiring [Level 3](https://v9.australiancurriculum.edu.au/f-10-curriculum/general-capabilities/critical-and-creative-thinking/slideout?code=CCTINQB3&element=0&sub-element=1)   * Identify, process and evaluate information |
| Areas of challenge | Some students may:   * have relatively limited experience with angles, how angles are measured, the names of different angles and their relationship to right angles * not yet be familiar with the idea that angles are measures of turn and that we can estimate the size of angles using a right angle as a starting point or benchmark * be unfamiliar with the names of the different angles, so it will be important to create a visual chart to help them to become more familiar with the names of the different angles and how the size of each angle can be compared to a right angle. |
| Strategies | * Concrete, Representational, Abstract (CRA model) * Differentiation * Collaborative learning |

Lesson structure

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| Learning hook  5 mins | * **Download and use the teacher’s slides to accompany your teaching.** * **Ask students to look around the classroom and see what angles they observe. Most students will be familiar with a right angle. Point out objects such as windows and walls that have a right angle.** * **Open the Teacher’s slides and use slides 2 to 4 to introduce angles and related terminology. Gauge students’ knowledge of the different types of angles, such as acute, obtuse, straight, reflex and revolution.** * **Explain that we can compare these other types of angles to a right angle.** |
| Explore  35 mins | * Use slides 5 to 8 to match diagrams of **different types of angles, such as right angle, acute angle, obtuse angle, straight angle, reflex angle and revolution to their label. In the slides, students need to identify the missing angle type (straight angle).** * Use slides 9 to 11 to apply what they have learned about the different angle types.   + On slide 9, students are asked what they notice about a clock. Use this slide to reinforce an acute angle and its accompanying reflex angle made by the hour and minute hands.   + On slide 10, the intersecting drains provide a useful example to discuss an acute angle and its accompanying obtuse angle that add together to make a straight angle.   + Slide 11 offers the opportunity for students to identify examples of right angles and identify the odd one out, which has acute angles. There may also be other solutions for the odd one out that students can justify. * Ensure that each student has a good understanding of the different types of angles. * Use slide 12 to show students how to make a simple angle checker. Students can use the angle checker against angles they draw in their books or on a sheet of paper. Explain that they will use their angle checker in the follow-up lesson.   **Differentiation**   * Support prompts: Can you represent an angle? * Enabling prompts: What examples can you think of that have an acute angle? How would you represent this? * Extending prompt: How might an acute angle be related to a reflex angle? |
| Summary and reflection  5 mins | * Use slide 13 to have students reflect on what they have learned about angles. * Ask students to use their elbow to create and identify an angle type. |
| Assessment | * Use observation and informal conversations to access students’ proficiency in identifying, describing and representing right angles, acute angles, obtuse angles, straight angles, reflex angles and revolutions. |