Name: _____

An tSraith Shóisearach do Mhúinteoirí

JuniorCYCLE for teachers

CPD 2019/2020

Graphics

Graphics –
www.curriculumonline.ie

www.jct.ie

Ionad Oideachais Mhuineacháin
An Roinn Oideachais agus Scileanna
Department of Education and Skills

Junior Cycle Terminology

Learning Outcomes **Learning Intentions** (NCCA Glossary of Terms)	Learning Outcomes: Learning outcomes are statements in curriculum specifications to describe the knowledge, understanding, skills and values students should be able to demonstrate after a period of learning. Learning Intention: A learning intention for a lesson or series of lessons is a statement, created by the teacher, which describes clearly what the teacher wants the students to know, understand and be able to do as a result of the learning and teaching activities.	**Subject Learning Assessment Review (SLAR)**	In Subject Learning and Assessment Review meetings, teachers will share and discuss samples of their assessments of student work and build a common understanding about the quality of student learning. Each Subject Learning and Assessment Review meeting will be subject-specific and will focus on the Classroom-Based Assessment undertaken by the particular year group.
		Unit of Learning	A unit of learning links learning outcomes which clearly set out what the students should know, understand and be able to do as a result of the learning and teaching activities within that unit.
Classroom-Based Assessment (CBA) (Framework p. 46)	Classroom-Based Assessments are best described as the occasions when the teacher assesses the students using the specific tasks set out in the subject specification. The tasks are clearly described, as are the criteria for assessment to support teacher judgement. The criteria are found in the Features of Quality linked to each Classroom-Based Assessment. Although the assessment is similar to the formative assessment that occurs every day in class, in the case of classroom-based assessment the teachers' judgement is recorded for Subject Learning and Assessment Review and is used in the schools reporting to parents and students.	**Formative Assessment** (Framework p. 35-36)	The Junior Cycle will be underpinned by the further integration of formative assessment as a normal part of teaching and learning in classrooms. Formative assessment involves teachers and students reflecting on how learning is progressing and deciding next steps to ensure successful outcomes. A vital part of formative assessment is the feedback that teachers provide to their students. Through a range of assessment activities, the teacher helps the student to identify what has been achieved and where there is room for further learning and development. To facilitate the type of learning envisaged above, the role of the teacher and the dynamics of the teacher-student relationship will evolve. Teachers will place a greater emphasis on integrating assessment into their teaching, so they can better monitor students ' progress in learning and identify how they can support students to reflect on and critically analyse their own learning.
Features of Quality (FoQ) (NCCA Glossary of Terms)	Features of quality are the statements in the short course/subject specifications that support teachers in making judgements about the quality of student work for the purpose of awarding achievement grades for certification. As success criteria are closely linked to learning intentions and based on the day-to-day processes in the classroom, student learning will gradually come to reflect the requirements set out in the features of quality which are used for certification purposes.	**Junior Cycle Profile of Achievement** **(JCPA)** (Framework p. 46)	The JCPA will reward achievement across all areas of learning as applicable: Subjects, Short Courses, Wellbeing, Priority Learning Units, Other areas of learning. The JCPA will draw upon and report on achievement across all elements of assessment including ongoing, formative assessment; Classroom-Based Assessments; and SEC grades which include results from the state-certified examinations and the Assessment Tasks.
Summative Assessment (NCCA Glossary of Terms)	Assessment is summative when it is used to evaluate student learning at the end of the instructional process or of a period of learning. The purpose is to summarise the students' achievements and to determine whether and to what degree the students have demonstrated understanding of that learning by comparing it against agreed success criteria or features of quality.	**Success Criteria**	Success criteria are linked to learning intentions. They are developed by the teacher and/or the student and describe what success looks like. They help the teacher and student to make judgements about the quality of student
		Geometric concepts	Geometric concepts are abstractions which are grounded in geometric principles and constructions

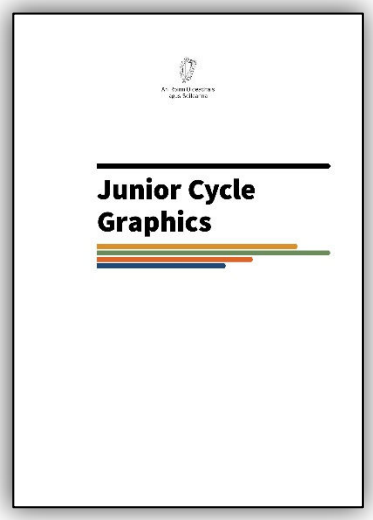
Rationale

Each subject of the technology suite offers the student different experiences which contribute towards their education in technology education. As a result, preparing students for learning in the technology subjects is not just about teaching towards the technology but towards the skills that are fundamental to the technology subjects and are transferable into other areas of their learning. Skills that encourage the student to solve problems through creation, innovation, communication, collaboration and exploration, all of which are developed in an active learning environment where students can advance their ideas from conception to realisation.

Graphics is recognised as the underpinning language of the technology disciplines and is transferable across a wide range of subjects such as mathematics, science and art. Students will use a variety of media to communicate their ideas and designs through this unique language. Throughout the course, students will explore the geometric world to gain an appreciation of the importance of graphics in the world around them. They will develop cognitive and practical skills such as graphical communication, spatial visualisation, creative problem-solving, design capabilities and modelling, both physically and through the use of computer-aided design.

Students will develop their creativity as they investigate and solve design challenges. During the problem-solving process, they will work with their peers to refine their ideas from an abstract concept to a final, detailed, drafted design. Abstraction, and spatial reasoning are fundamental to this process; graphics provides multiple and varied opportunities for students to develop these high level cognitive and creative skills in engaging contexts.

Accurate technical drawings are essential in the design and manufacture of components and artefacts. The need for precise communication in the preparation of a functional document distinguishes technical drawing from the expressive drawing of the visual arts. Producing accurate drawings requires significant attention to detail and a patient and resilient mind-set. Students will continually review and reflect on their working drawings developing strategies for improvement as they progress.

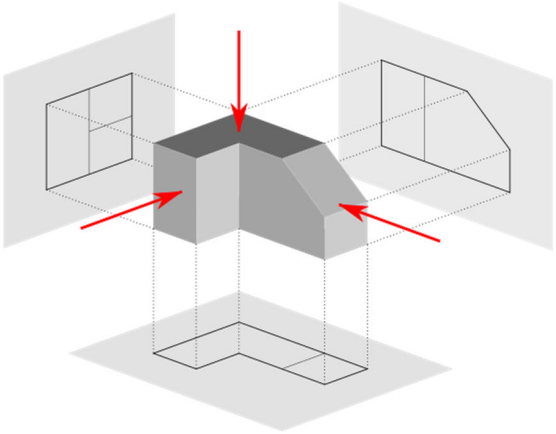


Aim

The study of Graphics at junior cycle aims to:

- develop the student's creativity, spatial ability, and capacity to reason and communicate ideas through engagement with abstract and applied geometric problem-solving activities
- encourage the development of the cognitive and practical dexterity skills associated with graphical communication
- instil an appreciation of the role of graphics in the world around them
- equip all students to make judgements on the best mode through which to represent their ideas and solutions
- encourage the production of drawings that promotes the skills of communicating through graphics
- develop students cognitive and practical skills associated with modelling and graphical communicatio

Exploring Geometric Principles

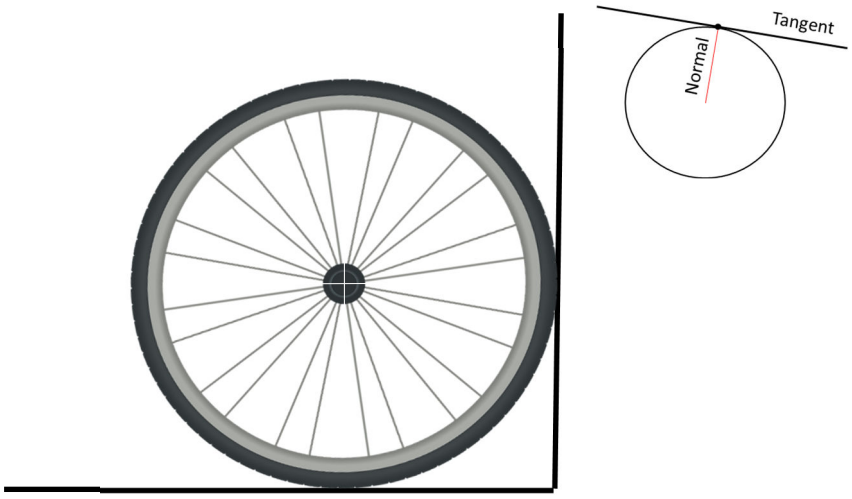


Concept Attainment

No.	Perceived Concept	Reason Why I Think This
1		
2		
3		
4		

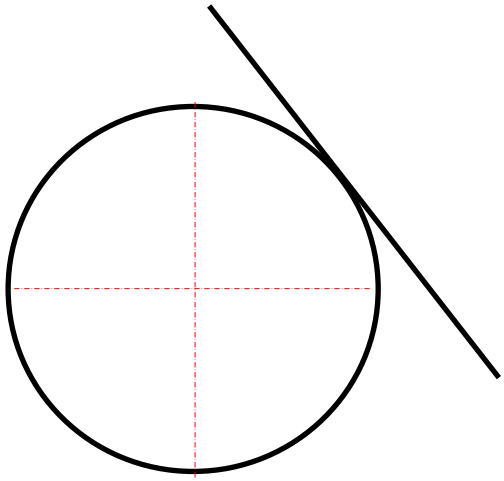
Testers		
	Yes/No	Reason Why I Think This
5		
6		

Activity 1:
A bicycle wheel rests on the ground and up against a wall as shown. Find accurately the points of contact. Identify the tangents and the normals.



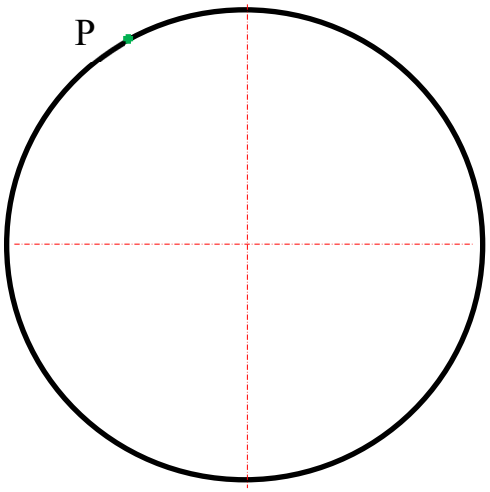
A Point *"that which has no part". A point in geometry is a location. It has no size, no width, no length and no depth. Two lines intersect at a point.*

Activity 2:
Trace the tangent and normal from Activity 1 onto tracing paper. Using the tracing paper, find accurately the point of contact between the tangent and circle below. Identify and label the right angle (90°).



A Straight line *"is a line which lies evenly with the points on itself"*

Activity 3:
Construct a tangent to the circle below at point P. Use the tracing paper to help you with your solution.



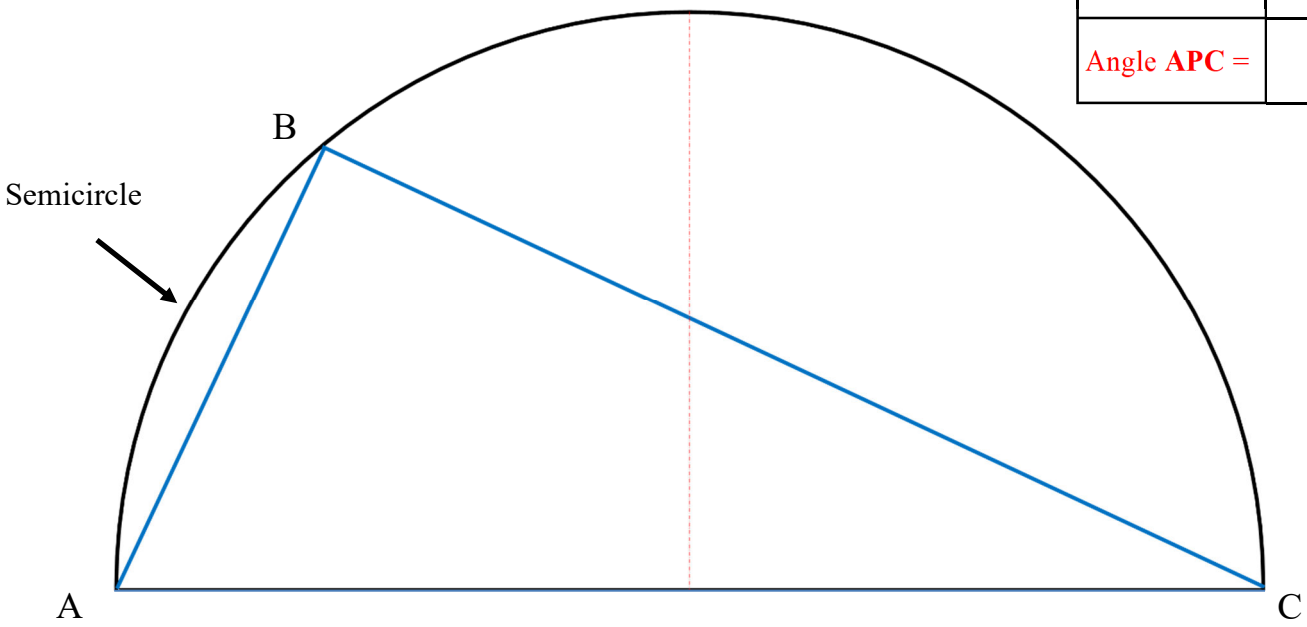
A Tangent *is a straight line which touches a given curve at one point only and doesn't pass through the curve.*

Activity 4:

What size is the angle ABC? Check it with your protractor. Construct another angle by joining A to any point P on the circumference of the semicircle and then joining back to C. How do the angles compare?

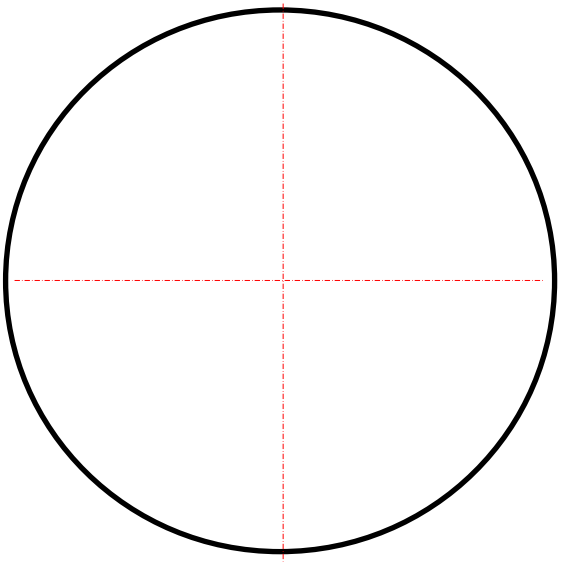
Use the tracing paper from Activity 1 to verify your answer.

Angle **ABC** =	
Angle **APC** =	



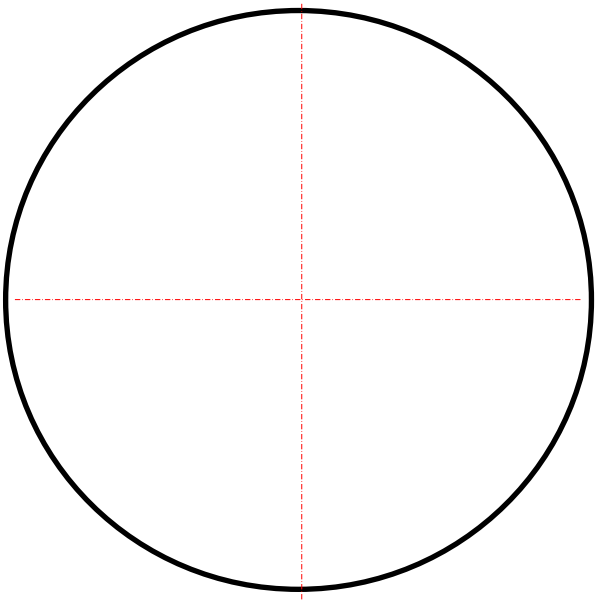
Activity 5:

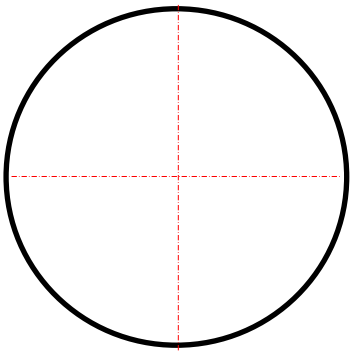
Construct accurately a tangent to the circle from point P. Find the point of contact for the tangent. The diagram below will help you with your solution.



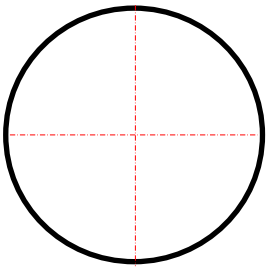
P

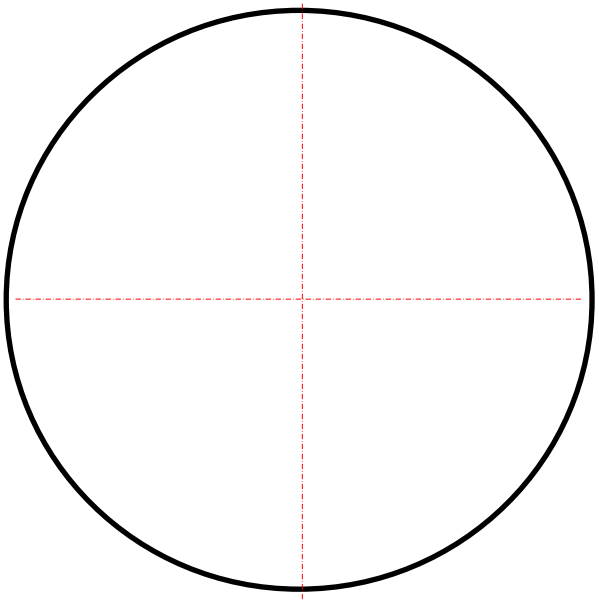
Activity 6:
Construct accurately an internal tangent to the circles shown below. Find the points of contact.





Activity 7:
Construct accurately an external tangent to the circles shown below. Find in each case the point of contact.





Teacher Name: **Sample Unit of Learning** | **GRAPHICS PLANNER** | Class Group: **Second Years**

Unit: **Tangents in the real world** | Duration: **Three Weeks** | Date Commence: 20/10/2019

Consider the age, stage and prior learning of the students.

What learning do we want to focus on?

Explore both the strands and elements when choosing learning outcomes.

AGE AND STAGE:

Second Year Students, Term 2

PRIOR LEARNING:

Basic constructions, Orthographic projection, Rendering plane objects, ellipse construction, translations and symmetry.

FOCUS OF LEARNING:

Tangents in the real world

EXPLORE STRANDS AND ELEMENTS:

2D Graphics, Applied Graphics, Geometric Principles and Constructions, Design Thinking.

CHOSEN LEARNING OUTCOMES

1.1 Visualise the manipulation of 2D shapes

1.4 Appreciate the role of 2D graphics in the creation of solutions

1.12 Construct 2D solutions accurately in accordance with graphical conventions

2.11 Appreciate the application of geometric principles in the study of other areas

3.1 Recognise 2D and 3D features in everyday objects and artefacts

Identify the learning outcomes for your unit of learning.

Identify the key learning for students using action verbs to support your thinking.

Consider how we will assess and report evidence of learning

KEY LEARNING

1.1 - Visualize the movement of 2D shapes, points and lines
Action Verb: Visualise

1.1 & 1.4 - Identify tangents in everyday objects and artefacts.
Action Verbs: Visualise & Appreciate

1.12 & 1.1 - Accurately locate points of contact and construct tangents.
Action Verbs: Construct & Visualise

3.1 & 2.11 - Recognise tangency in the world around them.
Action Verbs: Recognise and appreciate

ACTION VERBS

Visualise: make something visible to the mind or imagination something that is abstract or not visible or present to the eye

Construct: develop information in a diagrammatic or logical form; not by factual recall but by analogy or by using and putting together information

Appreciate: recognise the meaning of, have a practical understanding of

Recognise: identify facts, characteristics or concepts that are critical (relevant/ appropriate) to the understanding of a situation, event, process or phenomenon

Develop ideas for how students could experience this learning.

How will I know they are learning?

HOW COULD STUDENTS EXPERIENCE THIS LEARNING?

Sketching, Accurate drawing with drawing instruments, CAD.

Research of the local environment. Link learning to Mathematics constructions.

Design research project.

Ongoing Assessment

Teacher formative feedback throughout the unit of learning.

- Applying sketching and rendering techniques to emphasise tangent surfaces

3.1 & 2.11 - Discovery of tangents in their world and record using sketches and/or photography.

3.1 & 1.12 - Complete worksheets with tangency problems.

1.1 - Identify circle to ellipse visual connection. Application of core principle to different situations.

1.12 - Recognise angle in semicircle as 90°

1.4 - Complete design project incorporating tangency.

Summative test at the end of the unit

Using your own classroom context, what methodologies and resources will support students in experiencing the learning outcomes.

Ensure assessment aligns with the learning outcomes and their action verbs

RESOURCES

Visualiser, Camera/Phone, Set-squares and CAD enabled computers available, Sketching equipment & tracing paper. 3D teaching and learning models of tangents.

METHODOLOGIES

Teacher Demonstration of core knowledge, ghost walk and primary research, sketching, concept attainment and research project.

HOW WILL STUDENTS EXPERIENCE THE LEARNING OUTCOMES?

3.1 & 2.11 - Concept attainment exercise to introduce tangents.

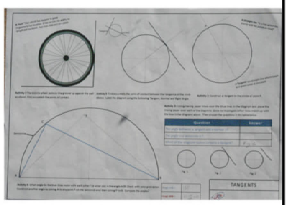
1.12 & 1.1 - Construct tangent and normal to ground concept. Definitions of point, line and tangent discussed. Use of tracing paper.

2.11 & 3.1 - Identify and highlight tangency in a ghost walk by taking pictures and/or examples online similar to objects seen on walk.

1.12 - Examination of the why the construction works using colour. Constructing solutions to various tangent problems.

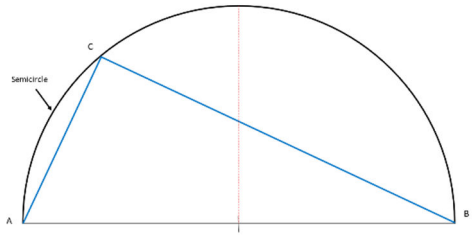
1.1 - Translation of Tangent and normal on tracing paper to highlight that it is same principle.

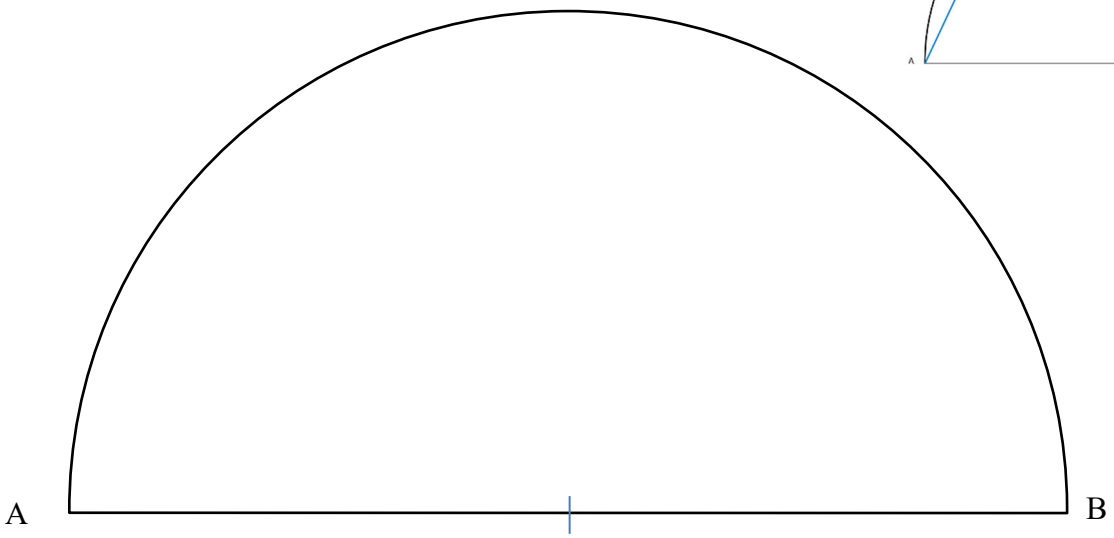
1.4 & 3.1 - Complete a research project to identify and highlight tangency in the world around them.



REFLECTION

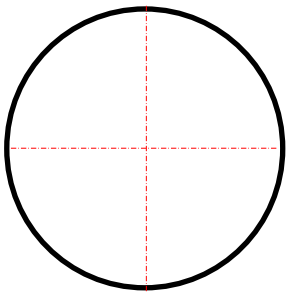
Links to Maths may be established and ensure this unit aligns with Mathematics constructions and Theorems





1. Join A and B to any point C on the circumference of the semicircle.
2. Join C to the centre of the semicircle.
3. Identify two isosceles triangles.
4. What is the sum of all the internal angles in these two isosceles triangles?
5. Use matching colours to identify angles of equal size.
6. Use two different colours to identify the two inside angles at the centre of the circle.
7. Use the Pie chart graphic below to represent the size of each angle.
8. Can you conclude what the size of angle ACB is?

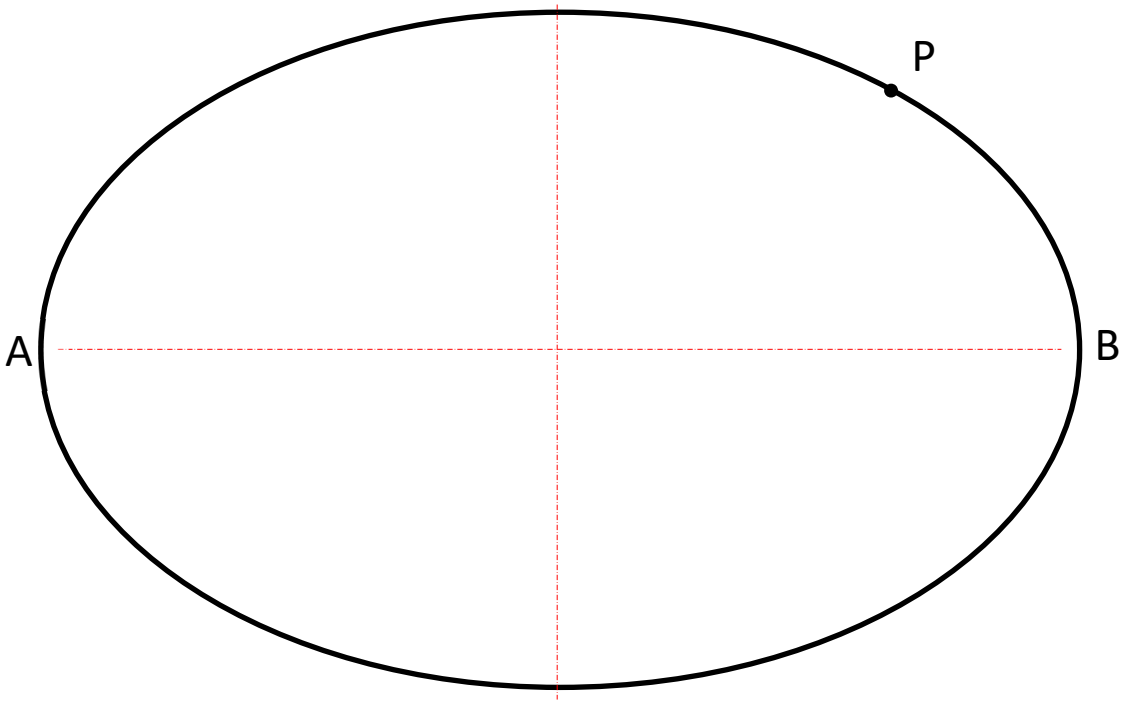
Notes:



Use the four colours to graphically represent the size of the angles in the circle above.

Spatial Reasoning Moment

Construct a tangent to the ellipse at point P, without finding the focal points.



Classroom-Based Assessments in Graphics

There are two Classroom-Based Assessments in Graphics. They are assessed at a common level. They relate to learning outcomes and are scheduled to be undertaken by students in a defined time period within class contact time to a national timetable (as advised by the NCCA) in the school calendar. This timetable for Classroom-Based Assessments for all subjects will be provided on an annual basis at www.ncca.ie/junior-cycle and at www.curriculumonline.ie/Junior-cycle. The Classroom-Based Assessments for Graphics and indicative timings are outlined in Table 1 below.

Table 1: Classroom-Based Assessments for Graphics

Classroom-Based Assessments	Format	Student preparation
Communicating through sketching **Year 2**	Graphically communicate their ideas using two-dimensional and/or three-dimensional sketching techniques Response may be presented in a wide range of formats Students can collaborate, but each student must present an individual piece of work	During a maximum of 3 weeks with support/guidance from teacher
Graphical presentation skills **Year 3**	Researching an area related to the domain of the SEC project Students must individually present a piece of work Response may be presented in a wide range of formats	During a maximum of 3 weeks, with support/guidance from teacher

Classroom-Based Assessment 1: Communicating through sketching

Communicating through sketching provides opportunities for students to engage in practical, authentic learning experiences giving them the opportunity to develop their skills to become competent in communicating through sketching. Students will be asked to choose a stimulus theme to graphically communicate their ideas using two-dimensional and/or three-dimensional sketching techniques. The theme is agreed between the student and the teacher and can be individual to student or broad enough to allow an entire class to respond with varying responses. Regardless of the stimulus theme the student opt to respond to, their response should be conducted through the lens of:

- researching of ideas
- geometric concepts*
- sketching representation
- communicating their Classroom-Based Assessment.

As part of their final submission, using the above lens, students will present the Classroom-Based Assessment in a suitable format, to be decided upon in agreement with the teacher that captures the students work throughout the Classroom-Based Assessment. The learning outcomes assessed will, to an extent, depend on the topic chosen and the media in which the work is presented.

_____

*Geometric concepts are abstractions which are grounded in geometric principles and constructions

- Junior Cycle Graphics, Guidelines for the Classroom-Based Assessments, Page 8

Evidence of learning

The students are required to capture their Classroom-Based Assessment using any format that is appropriate for presenting their solution. As part of the final submission, the following should be visible:

- Evidence of the research of ideas conducted by the student
- Identified geometric concepts
- The two-dimensional and/or three-dimensional sketched representation(s)

Any work accompanying the sketched representation(s) can be presented in any suitable format. For example:

- In written form, such as a report
- In digital form, such as a blog, a video or slide presentation
- In visual form, such as a graphic presentation or a display
- In audio form, such as a podcast or a voice-over

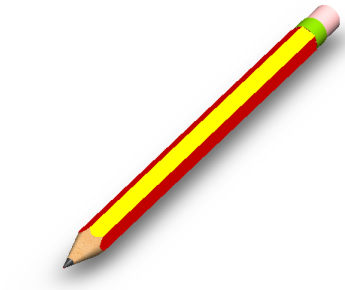
This list is not intended to be exhaustive but serves to offer suggestions as to the possible choices

Junior Cycle Graphics, Guidelines for the Classroom-Based Assessments, Page 14

Notes

Geometric Concepts

Using the objects below as stimuli, explore geometry present using sketching/annotation.
'Object viewer' codes are also given for further exploration of the objects through the Merge Cube.



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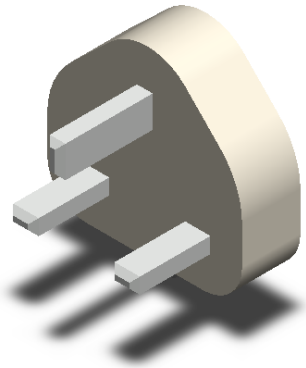
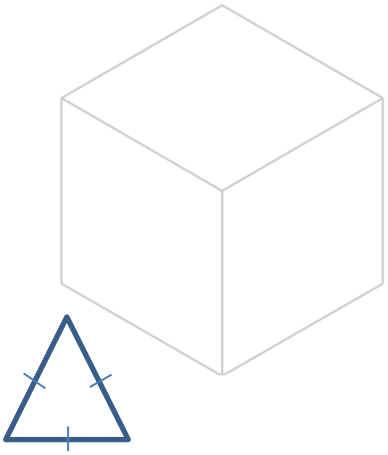


Code: **GMM X1X**

Student Visualisation Challenge

Using the below cubes, create cut surfaces to match the given shapes. Apply a variety of rendering techniques to enhance your solutions.

1.



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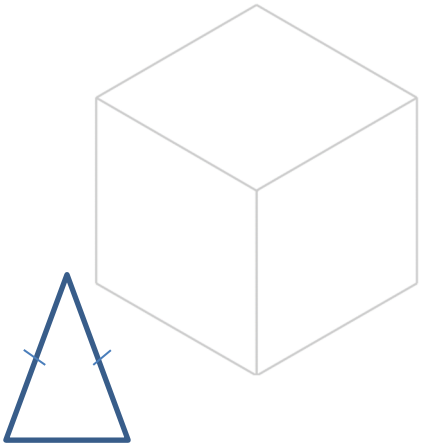

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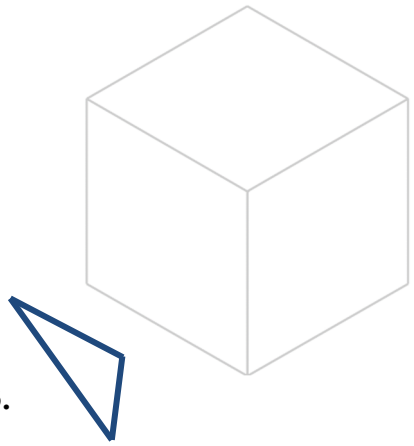

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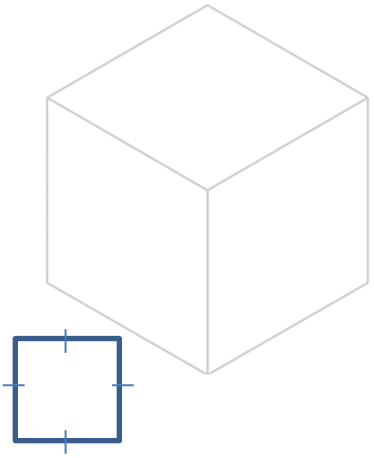

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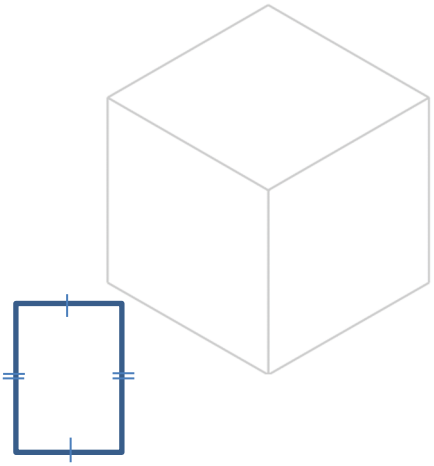

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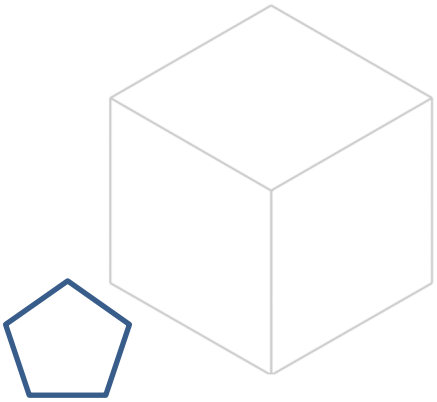

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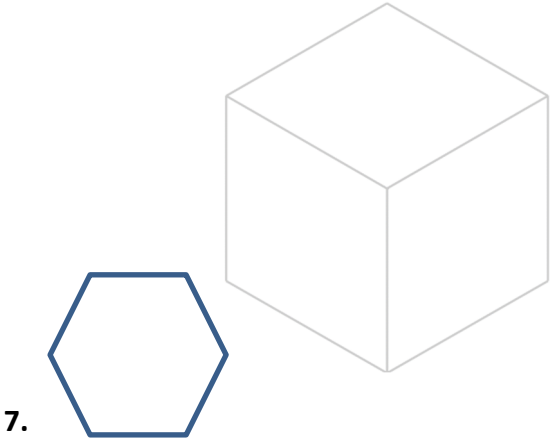

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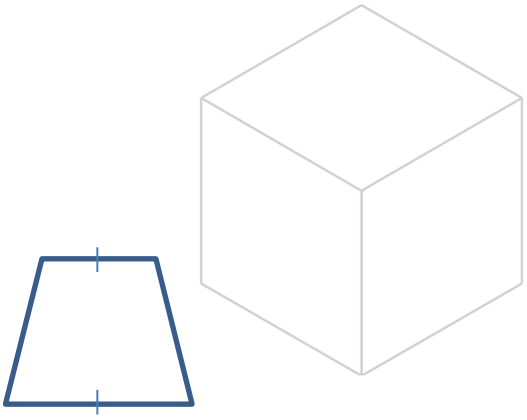


Cube	1	2	3	4	5	6	7	8
Cut surface								
Rendering technique								

Deciding on the level of achievement: Communicating through sketching

There are four level descriptors of achievement in each Classroom-Based Assessment: *Exceptional, Above expectations, In line with expectations, and Yet to meet expectations.* All work submitted is judged to fit one of these four descriptors. Teachers use the Features of Quality, set out in these assessment guidelines, to decide the level of achievement in each Classroom-Based Assessment.

Features of Quality: Communicating through sketching	
Exceptional A piece of work that reflects these Features to a very high standard. While not necessarily perfect, the strengths of the work far outstrip its flaws, which are minor. Suggestions for improvement are easily addressable by the student.	▪ The research method(s) chosen demonstrated a comparison of a range of sources which led to the production of a comprehensive and detailed analysis of the data/findings. ▪ The work submitted demonstrated an excellent understanding and use of geometric concepts. ▪ There was excellent use of two-dimensional and/or three-dimensional representations in the solution. ▪ The presentation of the solution is of an excellent standard; using a highly effective medium which allowed for a critical consideration of what information best communicates the task.
Above expectations A piece of work that reflects these Features very well. The student shows a clear understanding of how to complete each area of the task. Feedback might point to the necessity to address some aspect of the work in need of further attention or polishing, but on the whole the work is of a high standard.	▪ The research method(s) chosen was effective for the project domain and generated an in-depth level of analysis of the data/findings. ▪ The work submitted demonstrated a very good understanding and use of geometric concepts. ▪ There was a very good use of two-dimensional and/or three-dimensional representations in the solution. ▪ The solution was presented to a very high standard, using an effective medium, with careful consideration of what information accurately communicates the task.

Notes

Features of Quality: Communicating through sketching	
In line with expectations A piece of work that reflects most of these Features well. It shows a good understanding of the task in hand and is free from significant error. Feedback might point to areas needing further attention or correction, but the work is generally competent and accurate.	▪ The research method(s) chosen was appropriate for the project domain and generated some analysis of the data/findings. ▪ The work submitted demonstrated a good understanding and use of geometric concepts. ▪ There was a good use of two-dimensional and/or three-dimensional representations in the solution. ▪ The solution was well presented, using an appropriate medium, with careful consideration of what information to communicate to best showcase the task.
Yet to meet expectations A piece of work that falls someway short of the demands of the Classroom-Based Assessment and its associated Features. Perhaps the student has made a good attempt, but the task has not been grasped clearly or is marred by significant lapses. Feedback will draw attention to fundamental errors that need to be addressed.	▪ The research method(s) chosen for the project domain was ineffective and the analysis of the data/findings lacks depth. ▪ The work submitted demonstrated little to no understanding and use of geometric concepts. ▪ There was little or no use of two-dimensional and/or three-dimensional representations in the solution. ▪ The solution was presented in an unsuitable format resulting in an ineffective communication of the Classroom-Based Assessment.

Junior Cycle Graphics, Guidelines for the Classroom-Based Assessments, Page 14 & 15

Notes

Information on Subject Learning Assessment Reporting (SLAR) Meetings

Before the meeting

Teachers will

- Assess student work based on the Features of Quality
- Review relevant NCCA annotated examples as necessary (www.curriculumonline.ie).
- Record the descriptor and any other relevant points that may be useful to refer to during the SLAR meeting
- Identify one example, where possible, for each descriptor, to be used in the SLAR meeting
- Submit details of samples of work for discussion to the facilitator before the SLAR meeting

Facilitators will

- Collect and copy samples of work submitted by teachers
- Develop a running order for the SLAR meeting

During the meeting

Teachers will

- Introduce one sample at "Yet to Meet Expectations" level
- Collaboratively review the piece of work
- Make note of the implications of decisions made during the meeting for the rest of the student work that they have assessed
- Focus on a 'best fit' approach which allows teachers to agree the descriptors that on balance is most appropriate for the work being discussed
- Repeat the process, in turn, for a sample at each of the descriptors

Facilitators will

- Open the meeting with a focus on consistency of judgement and a common understanding about the quality of student learning
- Highlight the value of the meeting in providing feedback to students
- Lead the general discussion of samples of work and Descriptors and note any decisions made
- Look to establish consensus but focus on the development of professional knowledge and skills

After the meeting

Teachers will

- Consider the assessment of their students' work based on the SLAR meeting
- Report their final descriptors for each student

Facilitators will

- Complete and submit the Facilitator's Report to the Principal
- Reflect on what worked well or what could be improved upon in the next SLAR meeting
  The facilitator may also ask teachers, should they wish, to contribute some of their samples of student work to a bank of examples:
  - To support the induction of new teachers
  - To support future SLAR meetings
  - To use with students and parents in demonstrating the standard of work achieved

Classroom-Based Assessment 2: Graphical presentation skills

Graphical presentation skills provides opportunities for students to develop and demonstrate skills in researching and investigating the domain in which the project will be situated and present their findings graphically through any appropriate graphic media. The domain will change each year and will be related to the project the students will undertake in that same academic year. The domain will be developed by the State Examinations Commission and issued by the NCCA online through www.curriculumonline.ie. The student can graphically present the Classroom-Based Assessment through any appropriate media that captures and best communicates their response. To help structure their approach to the Classroom-Based Assessment, the students should focus their work through the lens of:

- research and analysis
- comparing concepts
- graphical presentation.

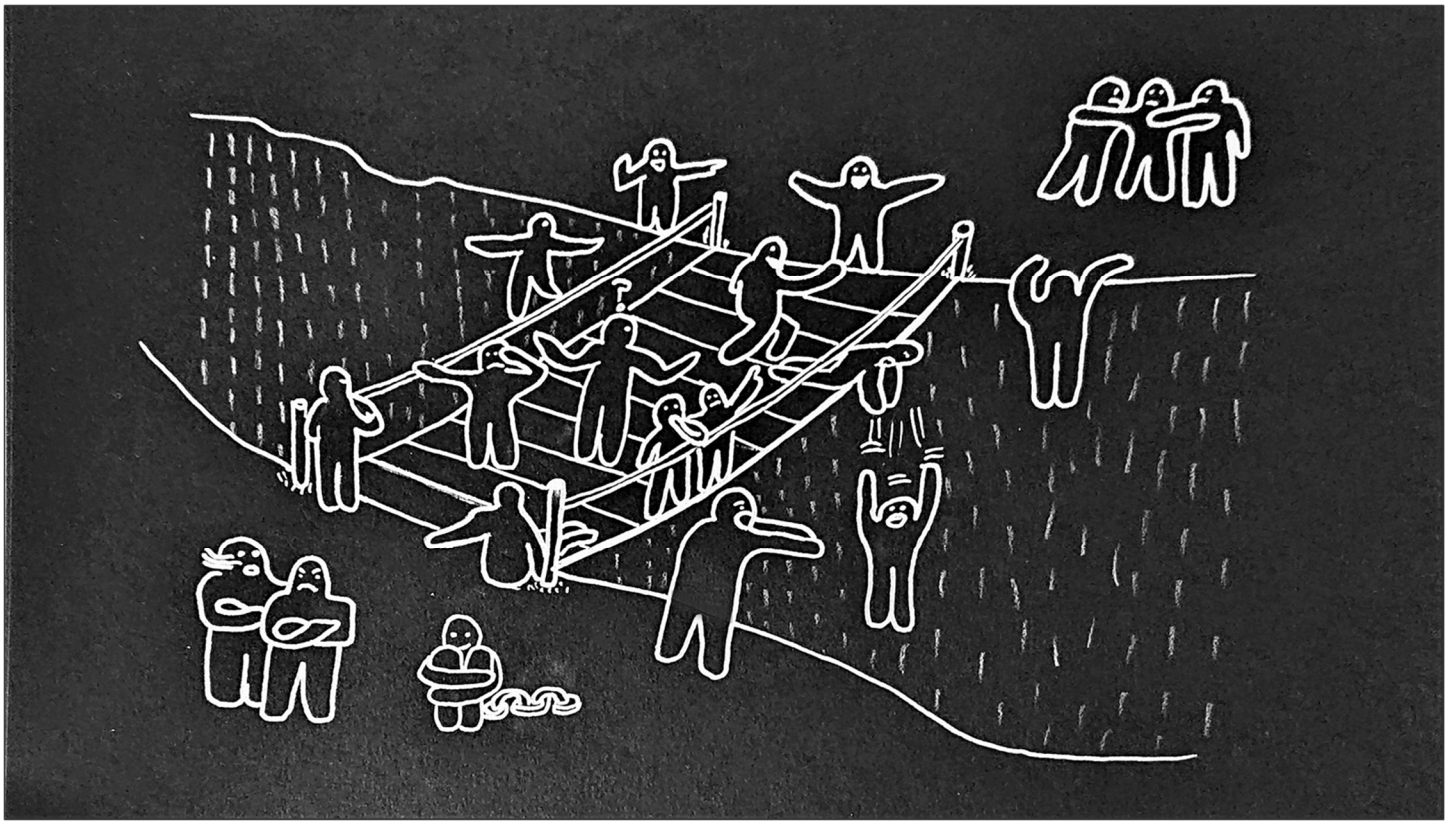
The learning outcomes assessed will, to an extent, depend on the topic chosen and the media in which the work is presented.

Junior Cycle Graphics, Guidelines for the Classroom-Based Assessments, Page 18

While **Graphical presentation skills** focus on researching and graphically presenting, students should have developed sufficient knowledge, skills, values and understanding to undertake the second Classroom-Based Assessment. As part of the ongoing teaching, learning and assessment of the learning outcomes for Graphics, students should have developed their research skills to allow them to effectively investigate and inform them of their upcoming project.

Junior Cycle Graphics, Guidelines for the Classroom-Based Assessments, Page 19

Notes



Adapted from *Blob Bridge* – www.blobtree.com

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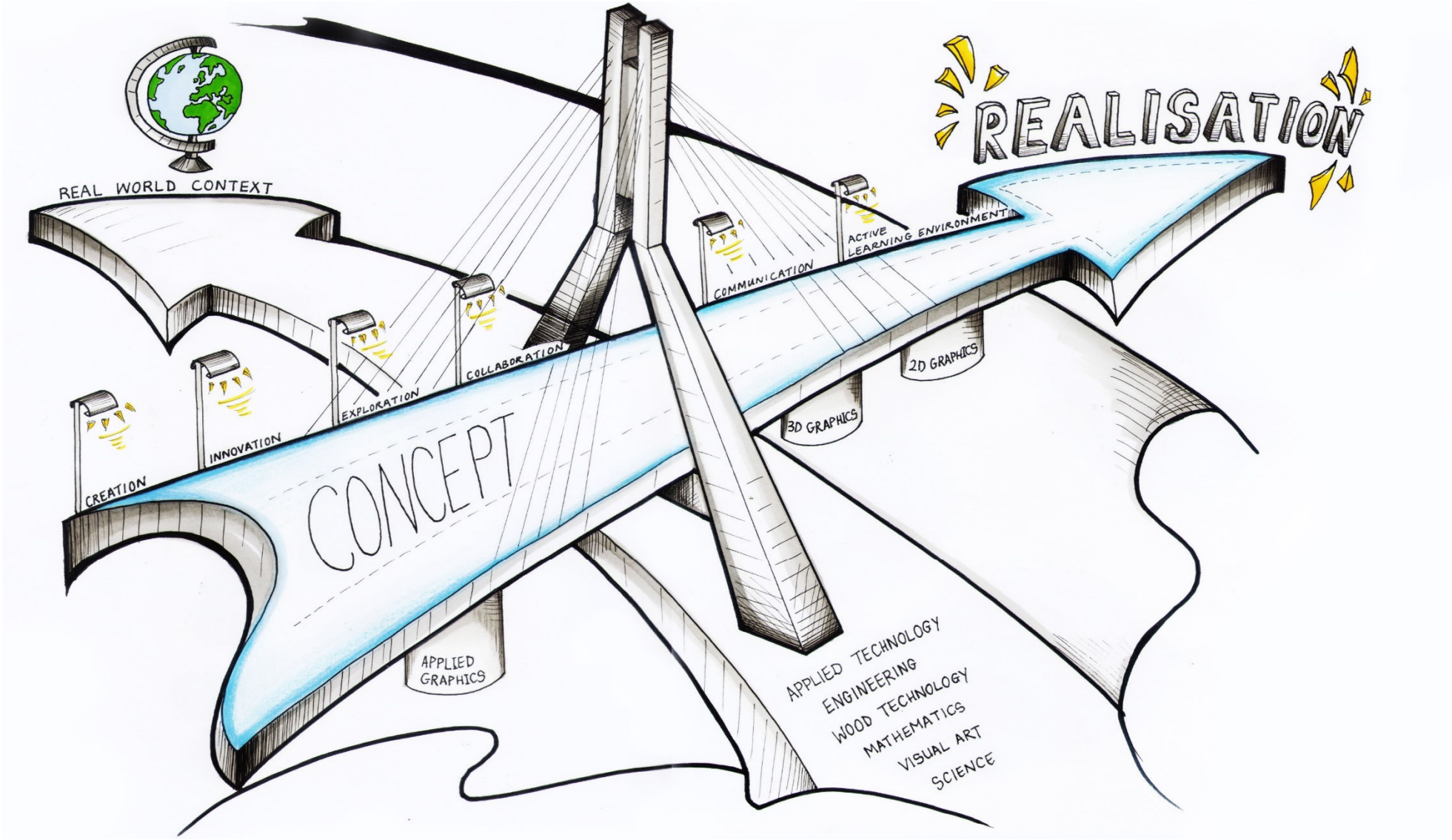
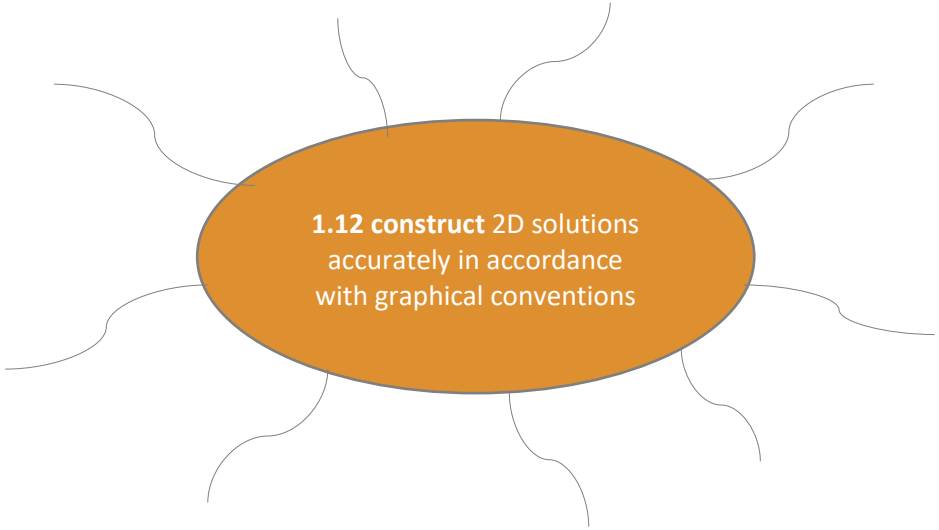

REAL WORLD CONTEXT
CREATION
INNOVATION
EXPLORATION
COLLABORATION
CONCEPT
COMMUNICATION
ACTIVE LEARNING ENVIRONMENT
REALISATION
2D GRAPHICS
3D GRAPHICS
APPLIED GRAPHICS
APPLIED TECHNOLOGY
ENGINEERING
WOOD TECHNOLOGY
MATHEMATICS
VISUAL ART
SCIENCE

Strand 1: 2D Graphics - In this strand, students will engage with, understand and apply the fundamental concepts and principles of 2D constructions, 2D shapes and projection systems. Throughout their studies, students will gain an appreciation of the application of 2D graphics to problem solving and develop an understanding of the role of 2D graphics in the creation of 3D objects and representations. Students should, as a result, be able to create clear representations of objects in space and accurately represent these in two-dimensions.

Knowledge
Understanding
Skills
Values

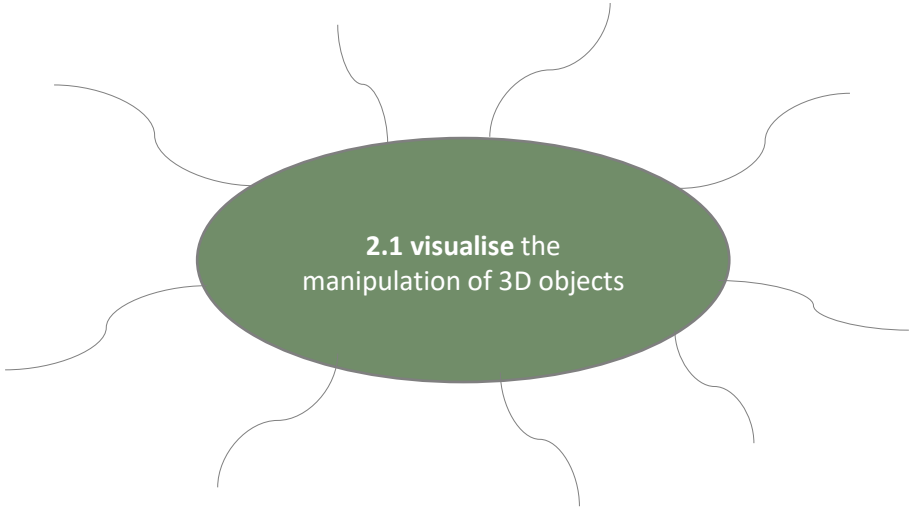


ELEMENT 4: GEOMETRIC PRINCIPLES AND CONSTRUCTIONS - The learning outcomes from the different strands that are associated with this element encourage students to execute their understanding of geometric shapes and objects in the construction of two- dimensional and three-dimensional representations and in the solving of geometric problems. Students will adapt their knowledge from classroom activities to explore the role of geometric principles and constructions in the natural world around them.

Construct: develop information in a diagrammatic or logical form; not by factual recall but by analogy or by using and putting together information

Strand 2: 3D Graphics - In this strand, students will engage with, understand and use the fundamental concepts and principles underpinning 3D objects, modelling systems and graphical conventions. This strand is of specific importance in developing each student's ability in visual imagery and representation. Students should as a result be able to accurately represent objects in three dimensions and apply these skills to problem solving.

Knowledge
Understanding
Skills
Values

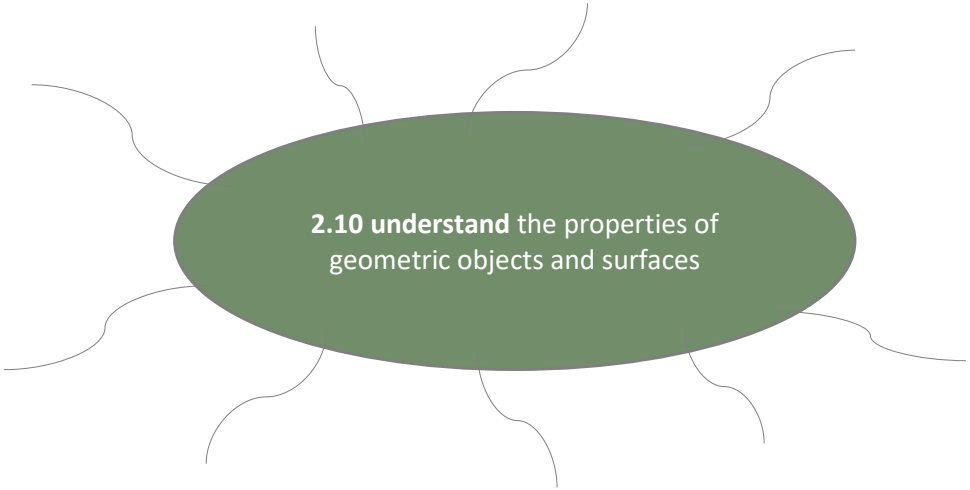


ELEMENT 1: SPATIAL REASONING The learning outcomes from the different strands that are associated with this element encourage students to investigate a range of shapes, graphical information, objects and artefacts to assist students in developing their spatial ability. The learning outcomes aid the student in developing their abilities from initially recognising spatial properties to visualising their manipulation.

Visualise: make something visible to the mind or imagination something that is abstract or not visible or present to the eye

Strand 2: 3D Graphics - In this strand, students will engage with, understand and use the fundamental concepts and principles underpinning 3D objects, modelling systems and graphical conventions. This strand is of specific importance in developing each student's ability in visual imagery and representation. Students should as a result be able to accurately represent objects in three dimensions and apply these skills to problem solving.

Knowledge
Understanding
Skills
Values

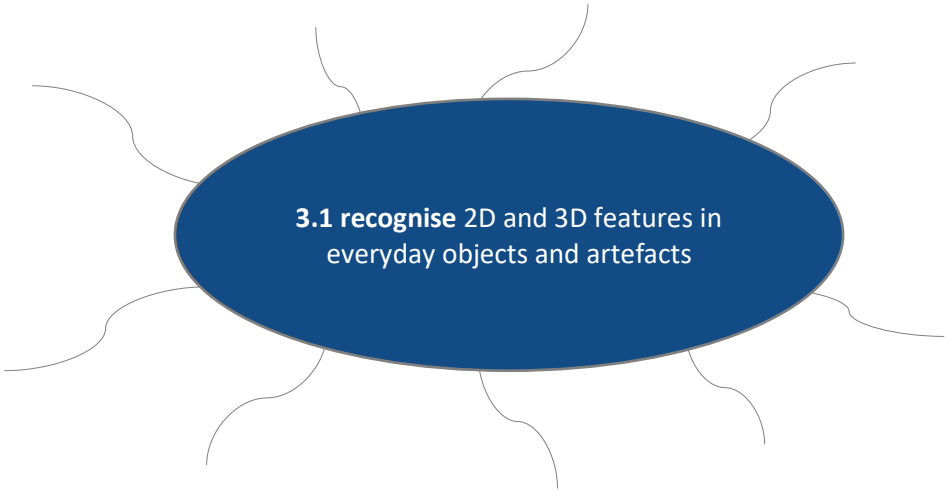


ELEMENT 4: GEOMETRIC PRINCIPLES AND CONSTRUCTIONS - The learning outcomes from the different strands that are associated with this element encourage students to execute their understanding of geometric shapes and objects in the construction of two- dimensional and three-dimensional representations and in the solving of geometric problems. Students will adapt their knowledge from classroom activities to explore the role of geometric principles and constructions in the natural world around them.

Understand: have and apply a well-organised body of knowledge

Strand 3: Applied Graphics - In this strand, students will draw on the knowledge, principles and techniques developed through the 2D Graphics and 3D Graphics strands to create and communicate solutions and information graphically. Students should be encouraged to investigate their physical environment and to apply the principles of 2D Graphics and 3D Graphics to the solution of a variety of problems. Students should be able to select the most appropriate methods to communicate their solutions and solve these problems, both in terms of their selection of graphical media and the mechanism for their utilisation.

Knowledge
Understanding
Skills
Values



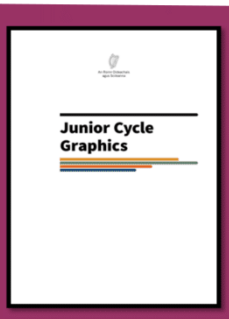
ELEMENT 1: SPATIAL REASONING The learning outcomes from the different strands that are associated with this element encourage students to investigate a range of shapes, graphical information, objects and artefacts to assist students in developing their spatial ability. The learning outcomes aid the student in developing their abilities from initially recognising spatial properties to visualising their manipulation

Recognise: identify facts, characteristics or concepts that are critical (relevant/ appropriate) to the understanding of a situation, event, process or phenomenon

20 students — 8 girls, 12 boys

Second year. One double (80 mins) and one single (40 mins) per week

Student interests include sports, agriculture, music and animals



Students have experienced learning consistently across the 3 strands and have recently engaged with the elements of geometric principles and constructions and spatial reasoning

The class have access to a computer lab once a week

Strengths

- The class group have successfully engaged with group tasks on numerous occasions.
- Approximately half the students would be very comfortable speaking in front of the class.
- A number of students are competent in CAD software, having previously partaken in a 3D printing design competition.
- Having discussed what they enjoyed in first year, the group identified 'looking at graphics in the world around them' as a particular strength they would like to build on.
- The class group often engage in peer feedback on one another's work and are becoming familiar with assessing their own work based on agreed success criteria.

Needs

- John, Michael and Mary have reading difficulties but learn well through visuals.
- Kate has a hearing impairment and can struggle to engage in group conversation.
- Tomas and Viola speak Polish as their primary language. They sometimes can struggle with some terminology in Graphics.
- Jack has been absent from school recently due to an illness and was unable to engage with the previous unit of learning.
- Ava is studying the Level 2 Learning Programme and will be joining the class to work on specific learning outcomes from her Priority Learning Units. Specific learning outcomes have been identified between the SEN department and the Graphics teacher as a focus for Ava.

Teacher Name:

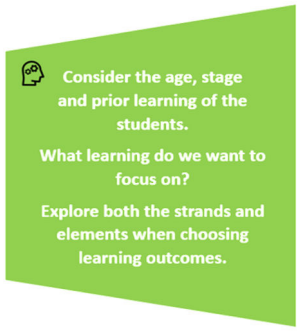
GRAPHICS PLANNER

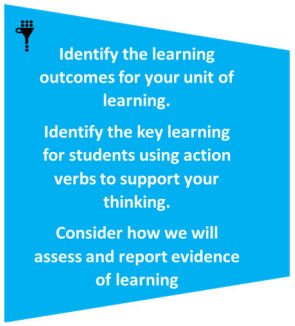
Class Group:

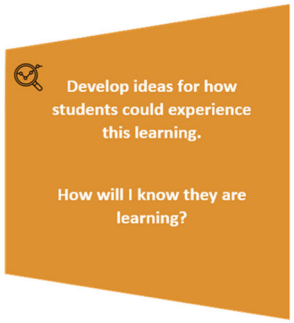
Unit:

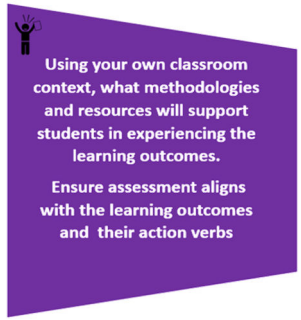
Duration:

Commencement Date:









What are my next steps?

When I go back to school tomorrow…

Over the next couple of months…

Next year…

What new strategies could I use in my classroom?

Notes

Notes

Notes

An tSraith Shóisearach do Mhúinteoirí

Junior CYCLE for teachers

Contact Details

Administrative Office:

Monaghan Ed. Centre,

Armagh Road,

Monaghan.

www.metc.ie

Director's Office:

LMETB,

Chapel Street,

Dundalk.

For all queries please contact:

info@jct.ie

Follow us on Twitter:

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