

Junior Cycle Graphics activities

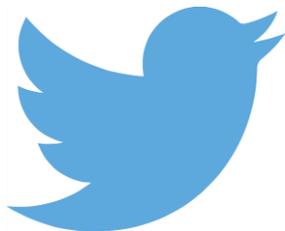
Classroom activities for the physically distanced classroom in the school year 2020/2021

Introduction



Junior Cycle for Teachers (JCT) is a dedicated continuing professional development (CPD) support service of the Department of Education and Skills. Junior Cycle for Teachers aims to inspire, support and empower teachers in the transformation of Junior Cycle education in Ireland. Responsibility for the four Junior Cycle Technologies subjects (Applied Technology, Engineering, Graphics and Wood Technology) within JCT lies with the dedicated Technologies team, commonly known as JCT4.

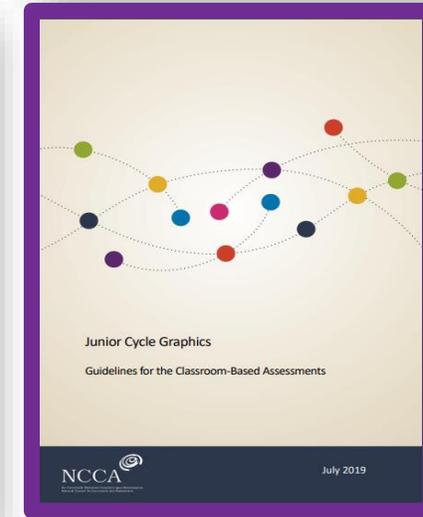
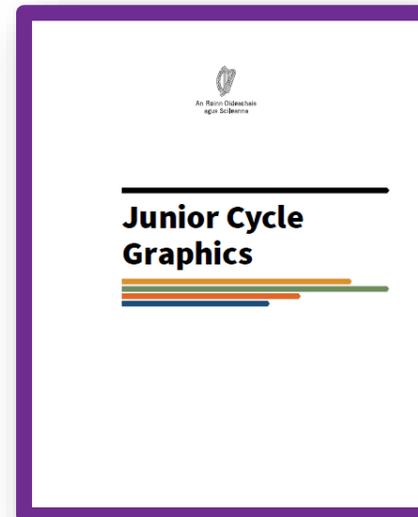
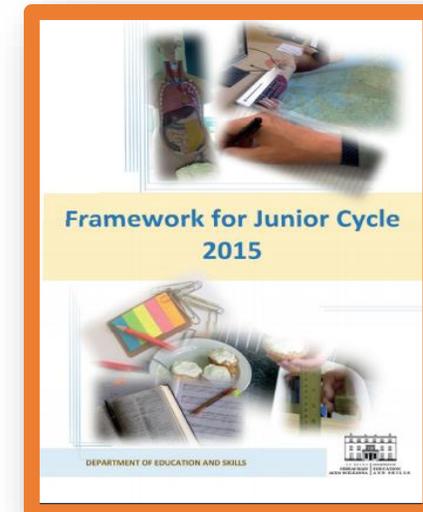
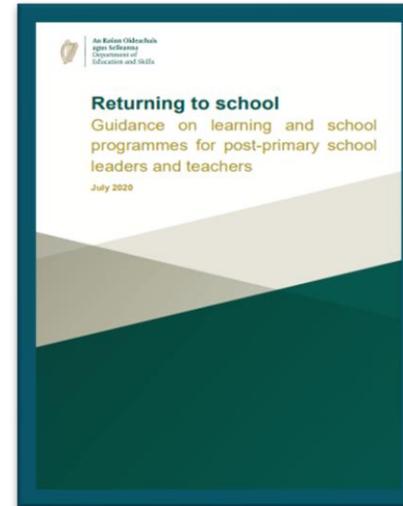
In the development of this resource, the JCT4 team aim to create rich learning experiences to complement the Junior Cycle specifications, particularly in the wider context of students and teachers returning to school with COVID-19 procedures in place. The resources created are not designed to be used in a linear fashion, but rather to support the creation of learning experiences that work for individual schools in their individual contexts. Potential links with other subjects and potential to explore these topics in other areas of learning within Junior Cycle are encouraged throughout and again, teachers would be encouraged to adapt and explore these links to suit their own students' and school context.



As you explore this resource, you may identify potential links with other subjects and potential to explore these topics in other areas of learning within junior cycle. Please let us know your experience of using these resources on social media via [@JCt4ed](https://twitter.com/JCt4ed) and [@JCforTeachers](https://twitter.com/JCforTeachers).

Contents

- [Page 1](#) Identifying the starting points of learning
- [Page 2](#) Preparation for teaching and learning
- [Page 3](#) Learning approaches
- [Page 4](#) Key skills
- [Page 5](#) Managing myself
- [Page 6](#) Managing information and thinking
- [Page 7](#) Staying well
- [Page 8](#) Graphics activities
- [Page 9](#) Safety signage (*suggested First-years*)
- [Page 16](#) Learning from home (*suggested Second-years*)



Key documents underpinning this resource



Identifying the starting points of learning

Students will have a variety of needs as they return to school and teachers will need to provide learning experiences to meet those needs. Accordingly, teachers will need to be alert to where their students are at; they will need to take time to evaluate students' needs, and may need to and wish to consolidate previous learning before introducing new learning. Key to this is an approach which builds on students' strengths. In that regard, some important questions for schools are:



Adapted from pages 13 and 14

Have I reflected on the learning progress students have made?

Have I identified a range of formative assessment measures to assess the progress that students have made?

Have we as a subject department reviewed subject specifications and identified learning outcomes that are priorities for the return to school?

Have cross curricular learning opportunities been identified and planned collaboratively to maximise learner outcomes?



Preparation for teaching and learning

Building on their assessment of students' learning as outlined above, teachers will make key decisions about what students learn, the sequence in which they learn, the pace at which they learn, and the activities and experiences through which they learn. Teachers and schools are best placed to make these decisions and to exercise the professional judgement and the autonomy they have in this context. The following questions may support teachers to reflect on their preparation for teaching and learning:

Has my lesson planning taken account of collaborative decisions about teaching and learning including decisions about essential learning, the sequencing of learning, the pace at which students learn and the activities and experiences through which they learn?

Do the planned learning experiences provide for social interaction and collaboration between students?

Do the planned tasks assess the learning outcomes or objectives that have been prioritised over a series of lessons?

Are planned learning tasks and activities accessible to all students, including those with special and additional educational needs?



Adapted from pages 13 and 14

Learning approaches

It is essential that, right from the start of the school year, a broad range of active learning experiences is provided for all students. This should include:

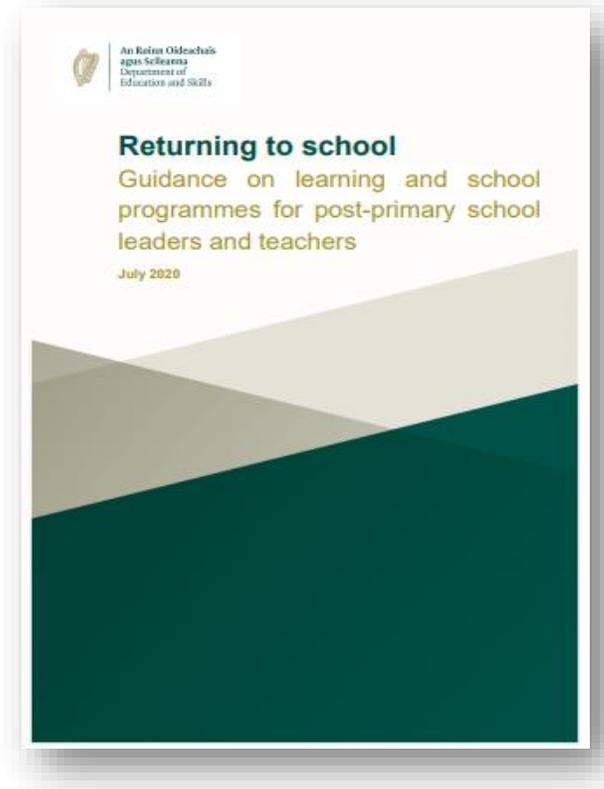


Adapted from pages 13 and 14

- ✓ Prioritising practical lessons to enable students to demonstrate skills and knowledge developed during remote learning
- ✓ Providing learning experiences based on pair work and group work that support student interaction and engagement in meaning-making; this will help in achieving learning outcomes/objectives across the curriculum, particularly in the areas of language, mathematics, business, science and technology and the arts
- ✓ Integrating digital technologies in a responsive and innovative way into teaching, learning and assessment
- ✓ Questioning, tasks and student-teacher conferencing; these are practical and effective assessment approaches that will be helpful in identifying the priority areas in which students' learning needs to be progressed

Key skills

In light of the school closure and related health requirements, many schools have already adopted creative and innovative ways to introduce incoming first years to the school. Where students have not had the usual supports when moving from primary to post-primary school, the key skills of Junior Cycle such as Managing Myself, Managing Information and Thinking, and Staying Well should be prioritised through the school's induction and wellbeing programmes.



Adapted from Page 10

Managing Myself

Managing Information and
Thinking

Staying Well

Managing Myself

- Knowing myself
- Making considered decisions
- Setting and achieving personal goals
- Being able to reflect on my own learning
- Using digital technology to manage myself and my learning



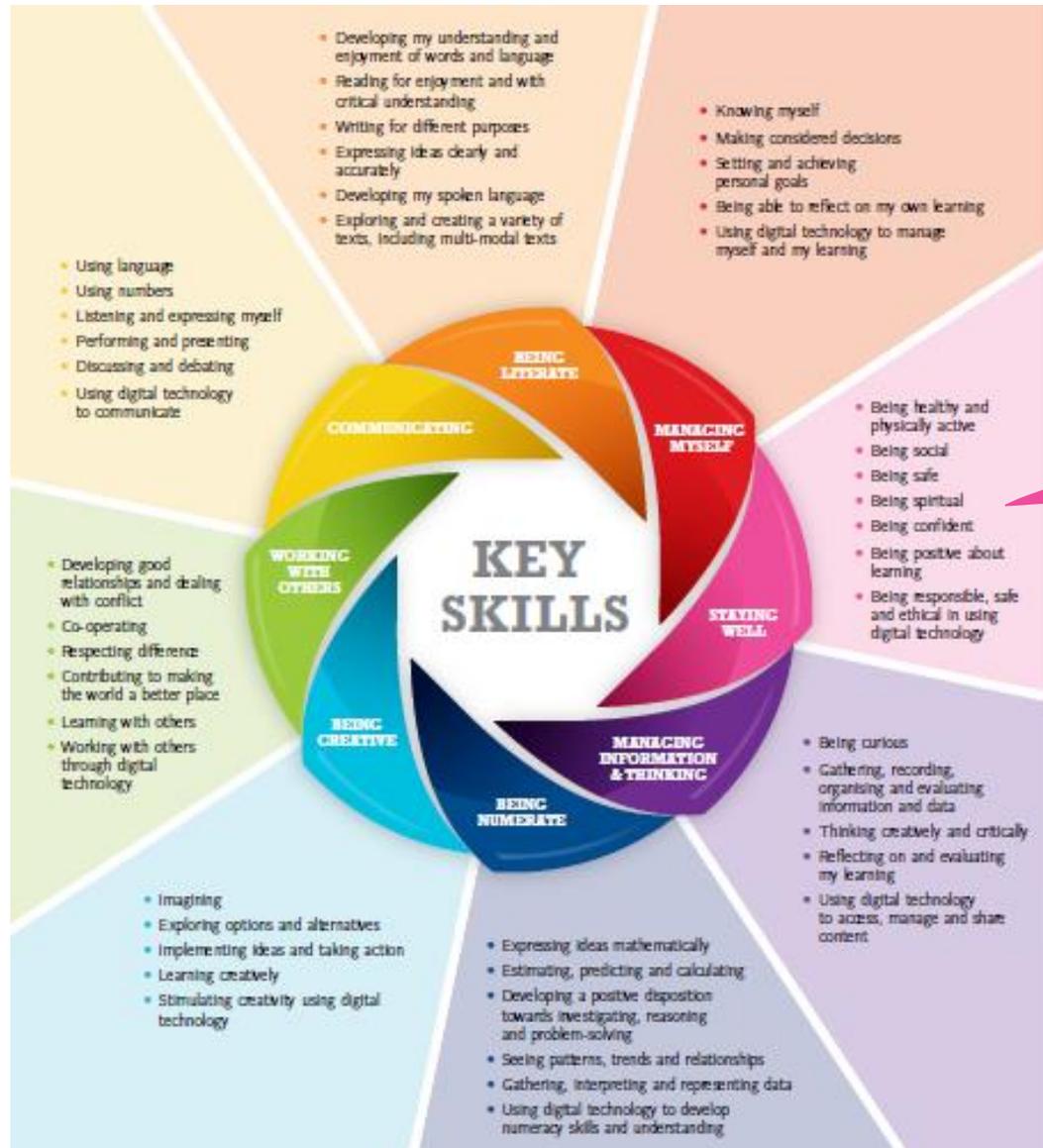
Managing Information and Thinking



- Being curious
- Gathering, recording, organising and evaluating information and data
- Thinking creatively and critically
- Reflecting on and evaluating my learning
- Using digital technology to access, manage and share content



Staying Well



- Being healthy and physically active
- Being social
- Being safe
- Being spiritual
- Being confident
- Being positive about learning
- Being responsible, safe and ethical in using digital technology





Junior Cycle Graphics



Click here for the Junior Cycle Graphics specification

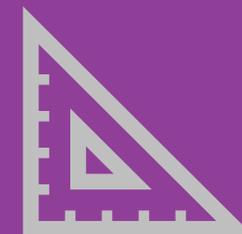
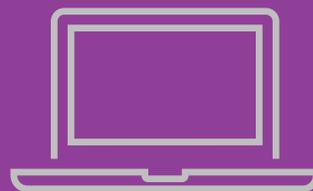


The following classroom activities for Junior Cycle Graphics aim to develop the key skills of **Managing Myself**, **Managing Information and Thinking** and **Staying Well**. Teachers are best placed to adapt these activities to suit their students' prior learning, local context and needs.

“The specification for Junior Cycle Graphics focuses on developing students' understanding of and skills in the applications and impact of technologies in the world around them. This will be achieved through three inter-connected contextual strands: **2D graphics**, **3D graphics** and **Applied graphics**.”

Graphics uses an interdisciplinary approach which encourages the integration of the three strands in the teaching and learning of the subject. The achievement of learning outcomes should be planned in a way that is active and stimulating.”

- adapted from the Junior Cycle Graphics specification, page 9.



Safety signage

Focus: Graphical presentation skills, developing Key Skills of Managing Information and Thinking, Managing Myself & Staying Well

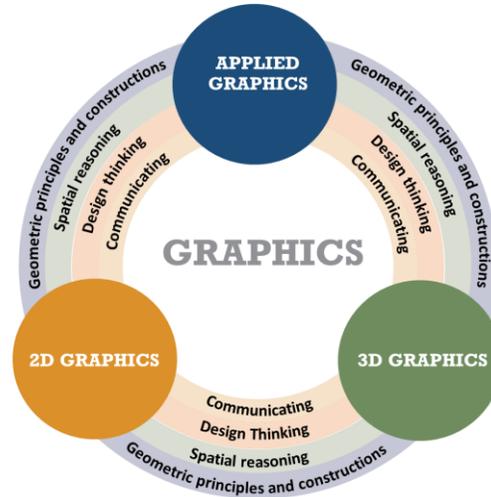
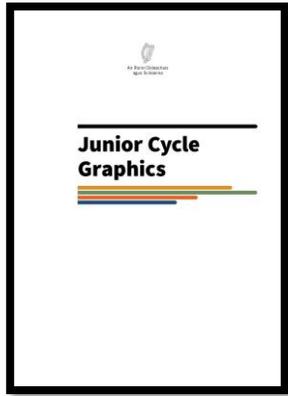
Suggested Year Group: First-year



Resource 1

Focus: Graphical presentation skills, developing Key Skills of Managing Information and Thinking, Managing Myself & Staying Well

Suggested Year Group: First-year



Note to Teachers:

The following resource is designed to align with the Graphics specification and learning outcomes. Contained within this resource are suggestions for a range of possible learning experiences, developed across the three strands. The suggested activities can be used in isolation following a period of instruction or as a combination of activities. The depth and time allocated is dependant on a teacher's plan for learning and their students' prior knowledge and understanding. Teachers should consider the needs and context of their students in planning for teaching and learning. In planning teachers should also consider situations where students may need to engage with learning from home. If students are engaging with learning from home, assessment and reporting procedures may need to be reconfigured to reflect this circumstance.

Explore Strands and Elements:

Possible Strands and Elements which could be explored for these suggested activities are:

Strands:

- 2D Graphics
- Applied Graphics

Elements:

- Spatial Reasoning
- Geometric Principles & Constructions

When deciding on learning outcomes you should consider class context, focus of learning and the action verbs you would like to develop with your students. The above list is merely a suggestion of the strands and elements which are relevant to the outlined activities that follow.



Introduction

Signage has always played an important part in how people engage with certain environments and situations such as classrooms, schools, transport etc. As students get accustomed to local signage and manage information in their school it is also an opportunity to identify the geometric shapes that make up these signs.

Task

Students are tasked with carrying out research on local signage with a focus on 2D Graphics and through discussion with the class teacher create a suitable classroom poster for maintaining a safe working environment.



Examples of signage



Possible student activities

- Choose a suitable sign within the school environment to analyse and recognise the presence of 2D Geometry.



- Investigate signage in their immediate environment and create a collage. The focus here is to identifying suitable geometric shapes.

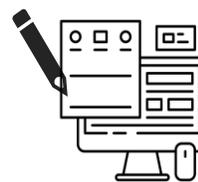


- Students in pairs/groups: Generate and communicate a class poster using technical drawing and appropriate 2D Geometry to highlight ways the group can maintain a safe work environment.

Use any suitable graphic media.

Note: The purple bubbles correspond to the supports that follow

- Teacher-led discussion: Develop a class agreed list for creating a safe classroom environment via a classroom discussion of items necessary to create a safe classroom environment



For similar activities and additional resources relating to 2D shapes and constructions which may be suitable for a first-year group, see materials associated with the 2018/2019 Graphics cluster day by scanning/clicking the QR code below.



1

Exploring signage

Geometry can be found all around us and everywhere we look. For this activity, students could explore signage that they see at home, on the way to school, in school or in their hobbies with a focus on 2D Graphics.



What images could I include that would interest the students that I teach?

What type of 2D Geometry am I going to focus on?

Students could then focus on signage within the school and analyse it further to recognise the 2D Geometry present. Below are some prompt questions to support you in planning for your students' current learning needs:

What are the main principles of the geometries I want students to recognise?

What prior knowledge do my students have?



Is there local signage I could use which would be relevant to my students?



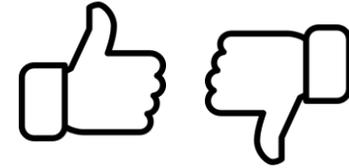
For similar activities on identifying 2D Graphics in everyday objects which may act as a stimulus for this activity, see materials associated with the 2018/2019 Graphics cluster day by scanning/clicking the QR code below.



Note to Teachers:

The above are suggestions of possible learning experiences to develop students' understanding of communication in Graphics. The suggested tasks can be used in isolation following a period of instruction or as a combination of activities. The depth and time allocated is dependant on your plan for learning and student's prior understanding in this area. When planning for teaching and learning, teachers should consider the needs and context of their students, in choosing Learning Outcomes (LOs) and the learning activities that will best support the learning. In planning teachers should also consider situations where students may need to engage with learning from home. If students are engaging with learning from home, assessment and reporting procedures may need to be reconfigured to reflect this circumstance.

Classroom discussion

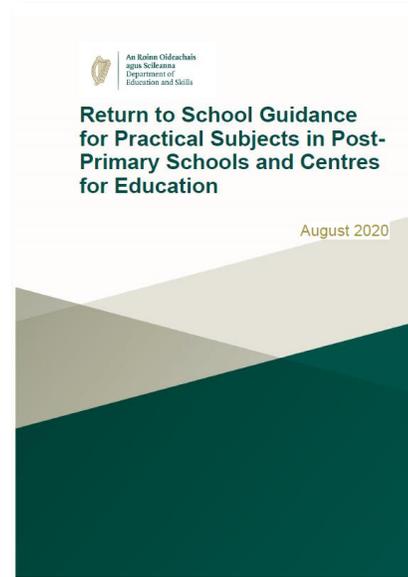
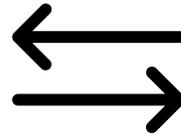
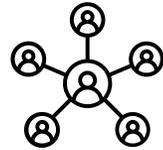


Consider the following questions as a class group:



How can we best interact with each other to ensure a safe working environment?

What new changes in the school do my students need to be aware of?



Return to School Guidance for Practical Subjects in Post-Primary Schools and Centres for Education



Agreed List

In our classroom we should:



What are some of the main things to be aware of when using equipment in the classroom?

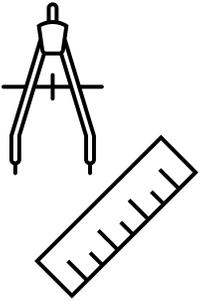
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3

Construction of 2D shapes and real world applications.

Once students have had a basic introduction to various 2D shapes, they may be interested in finding examples of them in the real world or investigating where geometric shapes have influenced human designs. This may include items in school, in a local area or at home.

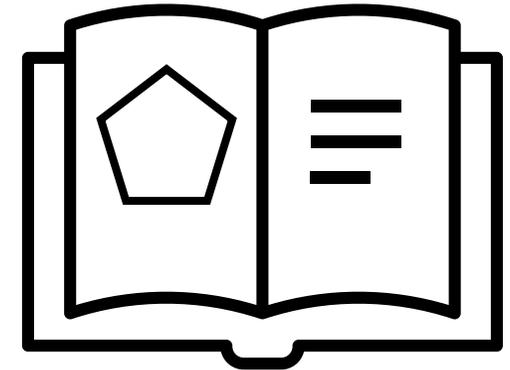
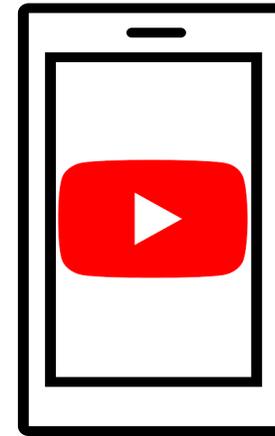


Another useful class resource which students could collaboratively create would be a bank of 'how-to' videos detailing the constructions of regular polygons. Some real world examples of such polygons would enhance the resource.

Are there any other products/objects which would be of interest to my students exploring 2D shapes/geometry?



Example shown of adidas footwear



A video tutorial or written instructions will help others master the construction methods to draw various 2D shapes

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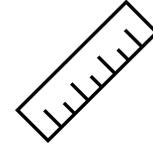
4

Developing a class poster

Taking the skills which have been developed in investigating 2D graphics, students could in pairs and/or groups develop a poster for their classroom which outlines the ways to maintain a safe working environment which were agreed earlier by the class group.

Another interesting area to develop here could be rendering and the use of colour in signage.

Students could then communicate the poster to the class group using appropriate media.



Consider the following questions as a class group:



What are the main pieces of information I want to display in this poster?
How will this contribute to staying well in school?

How big will my display be? What size should the graphics and text be?
What 2D geometric shapes could I include in my design?



What colour code could I use for the poster?
Does it matter?



Are there any other considerations that my students could take into account?

Success Criteria

My poster should include the following features:



Note to Teachers:

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Learning from home

Focus: Introduction to design, developing Key Skills of Managing Information and Thinking, Managing Myself & Staying Well

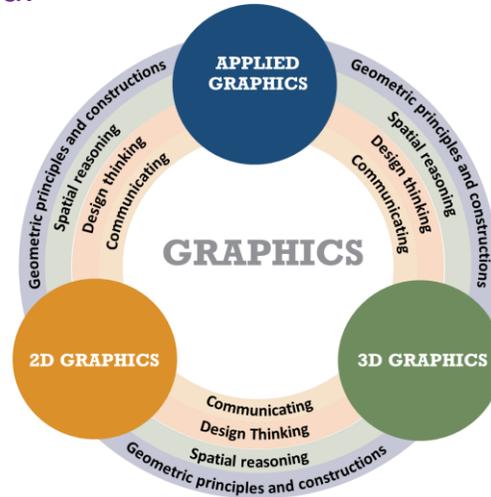
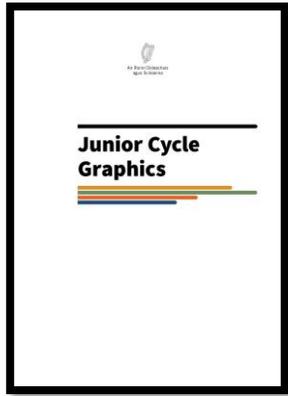
Suggested Year Group: Second-year



Resource 2

Focus: Introduction to Design, developing Key Skills of Managing Information and Thinking, Managing Myself & Staying Well

Suggested Year Group: Second-year



Note to Teachers:

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Explore Strands and Elements:

Possible strands and elements which could be explored for these suggested activities are:

Strands:

- 3D Graphics
- 2D Graphics
- Applied Graphics

Elements:

- Design thinking
- Communicating

When deciding on learning outcomes you should consider class context, focus of learning and the action verbs you would like to develop with your students. The above list is merely a suggestion of the strands and elements which are relevant to the outlined activities that follow.



Introduction

Learning and working remotely has become part of all our lives in 2020. Reflecting on our own experiences, consider a redesign of your workstation or one which you have seen from online research to make it a pleasant and productive place to learn and work.

Task

Students are tasked with carrying out primary and secondary research, making informed decisions on their proposed design and presenting a proposal in a suitable graphical format.



Examples of cluttered work areas can be seen above

Possible student activities

Note: The purple bubbles correspond to the supports that follow



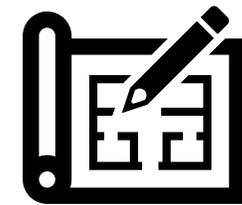
An interview with someone working from home



Internet research for alternative solutions

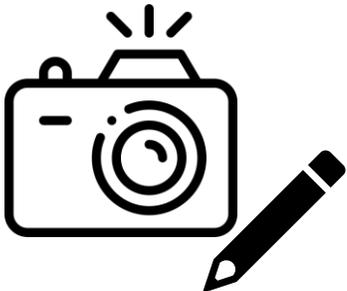


3
Creating a CAD model of the proposed design. Online cloud-based packages could be utilised at home

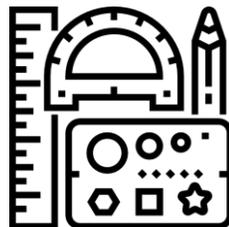


Detailed orthographic views of the proposed design, showing details and features

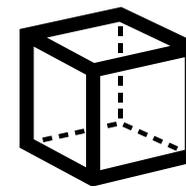
1
A collage of students' current set up, discussing pros and cons



2
Perhaps consider a theme or a principle of geometry as a focus throughout your design



Creating a 3D representation of your design



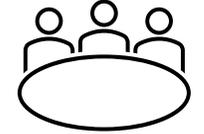
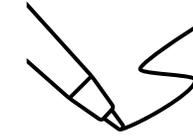
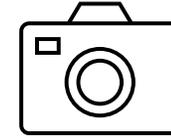
The QR code across will direct you to 'A Design Process' resource which may assist students in structuring their tasks



1

Collage of research/ideas

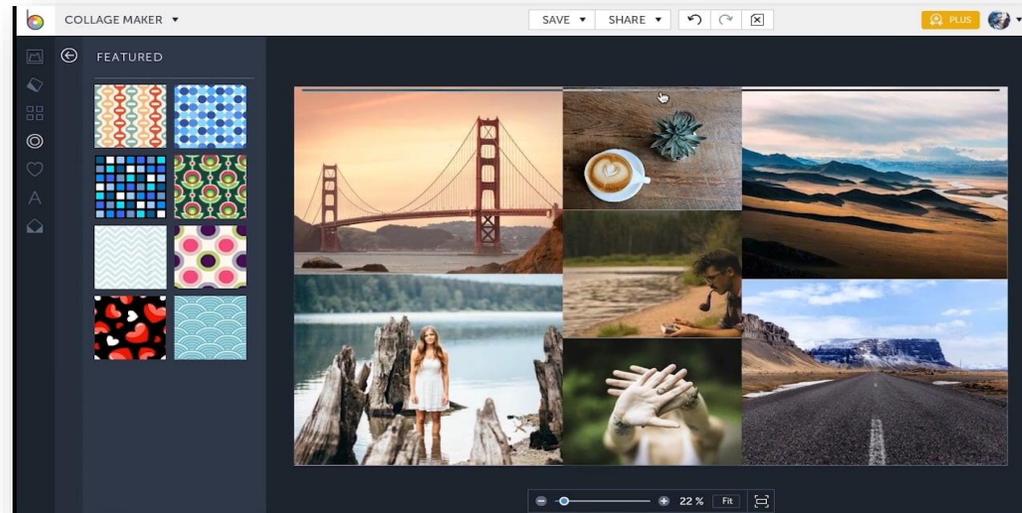
Students may like to create a collage of photos and/or sketches which show their current learning area or work areas they have researched online. This primary research may act as a stimulus to share unique layouts or features with the class group. A similar exercise could take place with sketched design ideas or secondary research from magazines/the internet.



Adobe Spark

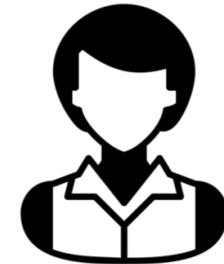


PIC•COLLAGE



An example of a digital collage on www.befunky.com

Are there any other forms of graphical communication which would be suitable?



Note to Teachers:

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My Design Guide

A Design Process - available on www.jct.ie

'My Design Guide' may help students to scaffold their design process from generating ideas, making decisions and exploring alternatives to deliver their final solution. A Jct4 webinar which was broadcasted in April 2020 outlined how a Graphics teacher used 'My Design Guide' to create a structured resource for their students to log research, thoughts and ideas for a specific project. This resource can be seen above.

Note to Teachers:

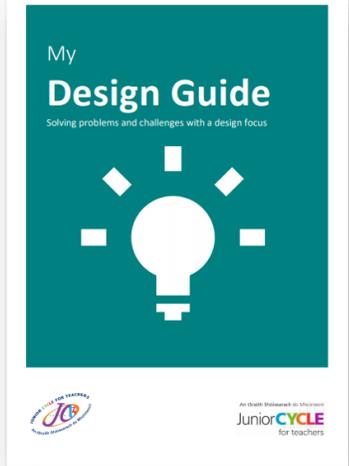
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A class discussion on how to log ideas, decisions and design solutions may aid students in structuring their proposals. 'My Design Guide' could act as a stimulus for such discussions.

Could my students' progress be logged in a digital form or does paper-based suit best? This could be an interesting conversation to have with my class group.



To access this webinar material, simply scan/click the QR code



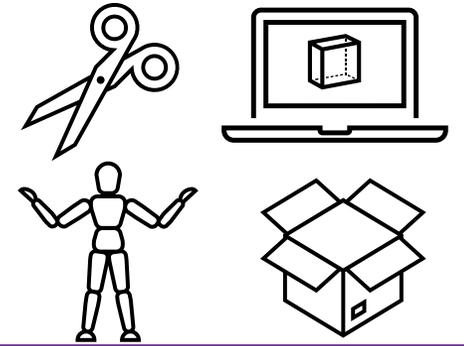
For a full copy of 'My Design Guide', click or scan the QR code below. This may provide additional prompts for student thinking.



Click or scan the QR codes

Model making

Students may wish to build a model of their proposed design solution. This may act as a useful exercise to help students fine-tune their design idea(s). Students may wish to build a physical model out of paper or card or perhaps create a CAD model. Software such as *Tinkercad* or *Sketchup* could be explored as an initial introduction to 3D CAD modelling. Augmented reality files could also be explored using resources such as the *merge cube* as an alternative to 3D printing.



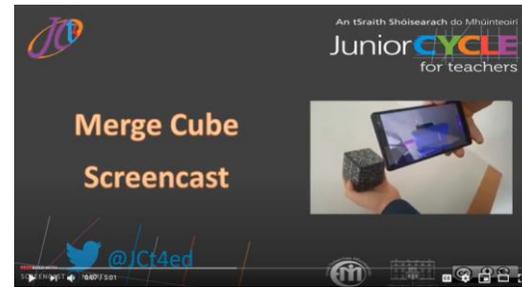
Onshape



Some relevant online links



CAD and AR resources on www.jct.ie



Do my students have any prior knowledge of modelling objects/shapes?

Does every student have to model their proposed design in the same form? Variety may aid peer learning.



Note to Teachers:

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Junior Cycle Graphics activities

Classroom activities for the physically distanced classroom in the school year 2020/2021

These resources were designed and collated in response to the [‘Returning to school - Guidance on learning and school programmes for post-primary school leaders and teachers’](#) and have a focus on the Junior Cycle Key Skills of Managing Myself, Managing Information and Thinking and Staying Well from the [‘The Framework for Junior Cycle 2015’](#).

These activities only offer, as a suggestion, some possible tasks which could be completed by students to engage with these Key Skills in the Graphics classroom.

Teachers’ knowledge of their own students’ context should inform their decisions around which activities would best engage their students.