



Oide

Tacú leis an bhFoghlaim
Ghairmiúil i measc Ceannairí
Scoile agus Múinteoirí

Supporting the Professional
Learning of School Leaders
and Teachers

Phase 5: Engineering Statements 2023/2024



Introductory text for JCSP Statements Supporting The Junior Cycle Engineering

The statements below were developed with input from a number of practicing Engineering teachers in JCSP schools. They are offered **as one possible model** that teachers may use to approach the new Junior Cycle Engineering Specification. They will be adjusted over time based on feedback from teachers in JCSP schools.

The new Engineering Specification may be accessed in full at www.curriculumonline.ie.

In addition, support for teaching of the Junior Cycle Specification may be accessed through the Junior Cycle for Teachers (JCT) Technologies team at www.jct.ie.

It is important to note that the statements below offer a sample approach for the creation of Junior Cycle Engineering statements. They do not cover all of the learning outcomes which are expected to be taught in the new junior cycle course.

August 2023

Area of Experience

Materials Technology: Metal / Engineering

**MTM /
Engineering**

Student:

Class:

At Junior Cycle level I can:

Date Commenced: / /

Date Awarded: / /

ENJC1 I can understand the procedures, materials and processes in Engineering

☐ ☐ ☐

ENJC2 I can research, design and manufacture in Engineering

☐ ☐ ☐

ENJC3 I can communicate my understanding of Engineering concepts

☐ ☐ ☐

1. Theory

Demonstrate knowledge of engineering materials, equipment, processes and workshop safety

☐ ☐ ☐

2. Production of a piece of work

Apply the basic knowledge and skills necessary to produce artefacts using engineering materials

☐ ☐ ☐

3. Engineering Drawings

Interpret basic engineering drawings and follow basic design procedures

☐ ☐ ☐

Work begun ☐ ☐ ☐ | Work in progress ☐ ☐ ☐ | Work completed ☐ ☐ ☐

I can understand the procedures, materials and processes in Engineering

Engineering

Statement Code: ENJC1

Student:

Class:

I can

I have begun ☐☐☐ | I am working on this ☐☐☐ | I can ☐☐☐

This has been demonstrated by my ability to:

1. State the classroom rules and daily routines e.g. tidying my workstation at the end of class ☐☐☐
2. Use hand tools and machines correctly and safely ☐☐☐
3. Look after my project and store it in the correct place ☐☐☐
4. Identify common engineering materials such as metals and plastics ☐☐☐
5. Explain where common engineering materials such as metals and plastics are used in everyday life ☐☐☐
6. Select a material to manufacture a product based on its properties ☐☐☐
7. Secure a workpiece properly and use the drill correctly ☐☐☐
8. Select a suitable tool for cutting a material and use it correctly ☐☐☐
9. Identify various engineering joining methods such as nuts and bolts, rivets, solder and adhesives ☐☐☐
10. Explain the reason why a joining method was chosen for an every day object e.g. joining wires, meccano sets ☐☐☐
11. Identify various electronic components and symbols ☐☐☐
12. Select appropriate finishes for materials such as filing, polishing or painting ☐☐☐

Reflecting on my learning...

One thing I did well...

One thing I did to improve...

I really enjoyed...

because...

I can research, design and manufacture in Engineering

Engineering

Statement Code: ENJC2

Student:

Class:

I can

I have begun ☐☐☐ | I am working on this ☐☐☐ | I can ☐☐☐

This has been demonstrated by my ability to:

- | | |
|---|--|
| 1. Carry out both primary and secondary research | ☐ ☐ ☐ |
| 2. Compare old and new technologies, such as a scooter and an e-scooter, and explain the differences between them | ☐ ☐ ☐ |
| 3. Investigate if the design and manufacture of a household item is environmentally friendly | ☐ ☐ ☐ |
| 4. Read and use a working drawing | ☐ ☐ ☐ |
| 5. Transfer measurements from a working drawing onto a piece of material | ☐ ☐ ☐ |
| 6. Make a part using a working drawing | ☐ ☐ ☐ |
| 7. Suggest an improvement to a given item e.g. game controller, mouse, headsets, gaming chair | ☐ ☐ ☐ |
| 8. Identify various mechanisms and use in a project | ☐ ☐ ☐ |
| 9. Bend a material accurately to a given angle | ☐ ☐ ☐ |
| 10. Solder an electronic circuit using at least 3 electronic components | ☐ ☐ ☐ |
| 11. Use coding software to program a mechatronic system | ☐ ☐ ☐ |
| 12. Complete a part or project to a high quality finish by filing, polishing or painting | ☐ ☐ ☐ |

Reflecting on my learning...

One thing I did well...

One thing I did to improve...

I really enjoyed...

because...

I can communicate my understanding of Engineering concepts

Engineering

Statement Code: ENJC3

Student:

Class:

I can

I have begun ☐☐☐ | I am working on this ☐☐☐ | I can ☐☐☐

This has been demonstrated by my ability to:

- | | |
|--|--|
| 1. Create a 2D sketch to show my first design ideas | ☐ ☐ ☐ |
| 2. Create a 3D sketch to show the steps towards my final design | ☐ ☐ ☐ |
| 3. Produce a working drawing of a part(s) of a project using drawing equipment or CAD software | ☐ ☐ ☐ |
| 4. Analyse an object and list the materials and steps involved in making it | ☐ ☐ ☐ |
| 5. Make a model using various materials such as card, paper or foam | ☐ ☐ ☐ |
| 6. Use engineering terms when annotating/labelling drawings and sketches | ☐ ☐ ☐ |
| 7. Present information to others using any appropriate media | ☐ ☐ ☐ |
| 8. Develop my communication skills using digital technologies | ☐ ☐ ☐ |
| 9. Work as part of a group or team to develop social and team-building skills | ☐ ☐ ☐ |
| 10. Reflect on the quality of my work | ☐ ☐ ☐ |
| 11. Examine my completed project(s) and list possible improvements | ☐ ☐ ☐ |
| 12. Explain the choice of materials and the steps taken to make my project | ☐ ☐ ☐ |

Reflecting on my learning...

One thing I did well...

One thing I did to improve...

I really enjoyed...

because...

Theory

MTM

Statement Code no: 1

Student:

Class:

At Junior Certificate level the student can:

Demonstrate knowledge of engineering materials, equipment, processes, and workshop safety

Date Commenced: / /

Date Awarded: / /

Learning Targets - This has been demonstrated by your ability to:

- | | | |
|----|--|--|
| 1 | State rules for safe and correct use of specified tools and procedures | ☐ ☐ ☐ |
| 2 | Observe and comply with workshop rules | ☐ ☐ ☐ |
| 3 | Identify typical measuring tools and measuring devices in everyday classroom use | ☐ ☐ ☐ |
| 4 | Recognise common engineering metals and plastics | ☐ ☐ ☐ |
| 5 | Identify plastics and metals in everyday use in the environment | ☐ ☐ ☐ |
| 6 | Suggest different uses for common engineering metals and plastics | ☐ ☐ ☐ |
| 7 | Suggest reasons for choices of material for everyday purposes, e.g. nuts and bolts/cars/drill bits/buses | ☐ ☐ ☐ |
| 8 | Identify basic metalwork hand tools | ☐ ☐ ☐ |
| 9 | Identify workshop machines | ☐ ☐ ☐ |
| 10 | List different joining methods (nuts and bolts/solder/rivets/ adhesive etc.) | ☐ ☐ ☐ |
| 11 | Suggest reasons for choice of joining method | ☐ ☐ ☐ |
| 12 | Suggest appropriate finishes for different jobs | ☐ ☐ ☐ |

Refer also to: English, Art, Materials Technology: Wood, Technical Graphics, Maths, Science

Work begun ☒ ☐ ☐ | Work in progress ☒ ☒ ☐ | Work completed ☒ ☒ ☒

Production of a piece of work

MTM

Statement Code no: 2

Student:

Class:

At Junior Certificate level the student can:

Apply the basic knowledge and skills necessary to produce artefacts using engineering materials

Date Commenced: / /

Date Awarded: / /

Learning Targets - This has been demonstrated by your ability to:

- | | | | | |
|----|---|--------------------------|--------------------------|--------------------------|
| 1 | Observe and comply with workshop rules | ☐ | ☐ | ☐ |
| 2 | Select and use the correct tools to mark out a piece of work | ☐ | ☐ | ☐ |
| 3 | Use hand tools to shape a piece of work | ☐ | ☐ | ☐ |
| 4 | Demonstrate correct use of a drilling machine | ☐ | ☐ | ☐ |
| 5 | Join metals using soft solder technique | ☐ | ☐ | ☐ |
| 6 | Produce a piece of work which contains internal and external thread | ☐ | ☐ | ☐ |
| 7 | Produce a piece of work which uses rivets | ☐ | ☐ | ☐ |
| 8 | Produce a piece of work using a centre lathe | ☐ | ☐ | ☐ |
| 9 | Produce a piece of work which uses adhesive | ☐ | ☐ | ☐ |
| 10 | Produce at least two examples of different types of finish | ☐ | ☐ | ☐ |
| 11 | Use a stencil to aid a decorative finish (e.g. enamelling) | ☐ | ☐ | ☐ |

Refer also to: English, Art, Maths, Materials Technology: Wood, Technical Graphics, Science

Work begun ☒ ☐ ☐ | Work in progress ☒ ☒ ☐ | Work completed ☒ ☒ ☒

Engineering Drawings

MTM

Statement Code no: 3

Student:

Class:

At Junior Certificate level the student can:

Interpret basic engineering drawings and follow basic design procedures

Date Commenced: / /

Date Awarded: / /

Learning Targets - This has been demonstrated by your ability to:

- | | | |
|----|--|--|
| 1 | Recognise basic engineering drawings | ☐ ☐ ☐ |
| 2 | Relate pictorial views to engineering views | ☐ ☐ ☐ |
| 3 | Match engineering drawings to objects at different stages of production | ☐ ☐ ☐ |
| 4 | Extract some information from basic engineering drawings | ☐ ☐ ☐ |
| 5 | Recall the steps followed in producing a piece of work | ☐ ☐ ☐ |
| 6 | Produce a sketch of a finished piece of work | ☐ ☐ ☐ |
| 7 | Identify the steps which caused problems and those which were easy in the production of a finished item | ☐ ☐ ☐ |
| 8 | Identify the steps enjoyed most when producing an item | ☐ ☐ ☐ |
| 9 | Examine a finished item you have made and identify changes you would consider | ☐ ☐ ☐ |
| 10 | Change the piece of work if necessary | ☐ ☐ ☐ |
| 11 | Find a simple object and list the steps needed to make it (e.g. teapot stand/bracket for hanging basket) | ☐ ☐ ☐ |

Refer also to: English, Art, Maths, Materials Technology: Wood, Technical Graphics, Science

Work begun ☒ ☐ ☐ | Work in progress ☒ ☒ ☐ | Work completed ☒ ☒ ☒