

## Unit R103 – Sustainable engineering

### Materials, material types and applications

#### *Instructions and answers for teachers*

*These instructions should accompany the OCR resource ‘Materials, material types and applications’ activity which supports OCR Cambridge Nationals in Engineering.*

**OCR** Engineering Level 1/2 **Cambridge NATIONALS**

**Unit R103 – Sustainable engineering**

**Materials, material types and applications**

**Task 1**

This activity is about recognising different specific types of materials and their uses.

Study the list of materials and products in the table below:

Acrylic	High carbon steel	High tension stainless	Lead	Automotive brake pad
Mild steel	Glass bottle	Fibreglass	Rigid Polystyrene	Duralumin
File	Carbon Fibre	Brass	Copper	Cast Iron
Bronze	Bench vice	High Speed Steel	Drill bit	Concrete
Polyethylene terephthalate (PET)	Aluminium	Waterloo bottle	Kayak	Polyethylene (PE)
House Light Switch	Acrylonitrile Butadiene Styrene (ABS)	Polyvinyl Chloride (PVC)	Kettle	Steel car body panel

#### **The Activity:**

This resource comprises of 1 task. Learners may need to use online resources to research material uses or check their understanding to complete the activity.



*This activity offers an opportunity for English skills development.*

#### **Associated materials:**

‘Materials, material types and applications’ activity sheet

#### **Suggested timings:**

**Task 1:** 1 hour

**Task 1**

This activity is about recognising different specific types of materials and their uses.

Study the list of material types and manufactured products in the table below.

Acrylic	High carbon steel	High tension Insulator	Lead	Automotive brake pad
Mild steel	Glass bottle	Fibreglass	Rigid Polystyrene	Duralumin
File	Carbon Fibre	Brass	Copper	Cast Iron
Bronze	Bench vice	High Speed Steel	Drill bit	Concrete
Polyethylene terephthalate (PET)	Aluminium	Water/pop bottle	Kayak	Polyethylene (PE)
House Light Switch	Acrylonitrile Butadienestyrene (ABS)	Polyvinyl Chloride (PVC)	Kettle	Steel car body panel

Cut out and place the material types and manufactured items in the correct column. You may wish to do some research about materials and their uses to help with this activity.

Ferrous metals	Non-Ferrous metals	Thermoplastics*	Ceramics	Thermoset plastics*	Composites	Alloys
Cast Iron	Aluminium	Polyethylene terephthalate (PET)	High tension insulator	House light switch	Automotive brake pad	Bronze
Bench vice	Lead	Polyethylene (PE)	Glass bottle	Kayak	Carbon fibre	Brass
Mild steel	Copper	Polyvinyl Chloride (PVC)			Concrete	Cast Iron
High carbon steel		Water/pop bottle			Fibreglass	Duralumin
Steel car body panel		Rigid Polystyrene				
File		Acrylic				
Drill bit		Acrylonitrile Butadienestyrene (ABS)				
High speed steel		Kettle				

\* Thermoplastics - (Synthetic Polymers) suitable for recycling through re-heating and reforming

\* Thermoset plastics - Permanently formed (cannot be softened)

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**OCR Resources: *the small print***

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