Plastics Technology

Catalogue Number	8057-0000
Category	Production Processes
Duration	15 Hours

Activity 1: Introduction to Plastics

- What is Plastic?
- Plastics in Our Daily Lives
- The History of Plastics

Activity 2: Polymers

- What Are Polymers?
- Plastic Polymer Characteristics
- Plastic Polymer Properties
- Plastic Polymer Identification
- Plastics Processing
- Extrusion
- Calendering
- Other Extrusion Processes
- Extruding Fibers and Filaments
- Molding Techniques

Activity 3: Thermoforming and Safety

- Thermoforming
- Common Types of Plastics
- Thermoplastics
- Safety Guidelines for Thermoforming Operations
- Thermoforming Safety Checklist

Activity 4: Thermoforming Hardware

- The Thermoforming Center
- Thermoforming Center Components
- Power Control Panel
- The Digital Timer
- The Temperature Control Panel

Activity 5: Extrusion and Polystyrene

- Extrusion
- The Typical Extrusion Process
- Thermoforming Center Components You Will Use
- Polystyrene
- Task: Preparing the Thermoforming Center
- Task: Melting Polystyrene Granules
- Task: Preparing Melted Polystyrene for Extrusion
- Task: Performing the Extrusion Process
- Task: Observing How Ram Speed Affects Extrudite

Activity 6: Injection Molding and Polyethylene

- Injection Molding
- The Injection Molding Process
- Polyethylene
- Task: Preparing the Thermoforming Center
- Task: Preparing the Crucible and the Mold
- Task: Melting the Polyethylene Powder
- Task: Preheating the Mold
- Task: Performing an Injection Molding Process

Activity 7: Polypropylene and Plastic Welding

- Polypropylene
- Plastic Welding
- Plastic Weld Types and Techniques
- Task: Preparing the Thermoforming Center
- Task: Setting Up the Parent Materials
- Task: Tacking the Parent Materials
- Task: Welding the Parent Materials Together

Activity 8: Methods of Plastic Welding

- Plastic Welding
- Identifying Plastics for Welding
- Methods of Plastic Welding
- Ultrasonic Welding
- Hot Plate Welding
- Spin Welding
- Vibration Welding
- Radio Frequency Welding

Activity 9: Vacuum Forming and Twin Sheet Forming

- Vacuum Forming and Pressure Forming
- The Vacuum Forming Process
- Regular Twin Sheet Pressure Forming
- Simultaneous Twin Sheet Pressure Forming
- Sequential Twin Sheet Pressure Forming

Activity 10: Vacuum Forming

- The Vacuum Forming Process
- Vacuum Forming Plastics and Molds
- Thermoforming Center Component
- Task: Preparing the Thermoforming Center
- Task: Installing the Vacuum Forming Fixture
- Task: Installing the Polystyrene Sheet
- Task: Performing the Vacuum Forming Process

Activity 11: Cast Acrylic and PVC

- Cast Acrylic
- Extruded Acrylic
- PVC

Activity 12: Dome Blowing

- What is Dome Blowing?
- The Dome Blowing Process
- Blow Molding
- Task: Preparing the Thermoforming Center
- Task: Installing the Dome Blowing Fixture
- Task: Setting the Dome Height Gauge
- Task: Heating the Acrylic Sheet
- Task: Performing the Dome Blowing Process
- Task: Removing the Dome
- Task: Observing Plastic Memory

Activity 13: Nylon and Dip Coating

- Nylon
- Dip Coating and Its Applications
- Dip Coating Process

Activity 14: Dip Coating

- The Dip Coating Process
- Task: Preparing the Thermoforming Center
- Task: Heating the Part to be Coated
- Task: Setting Up the Dip Coating Tank
- Task: Fluidizing the Nylon Powder
- Task: Dipping the Part

Activity 15: The Plastics Industry

- Plastics Industry
- Employment
- Shipments

Activity 16: Plastic Recycling and Resource Conservation

Plastics and Our Environment

Durability and Waste Reduction

Recycling Plastics

Advanced Recycling

Disposal and the Environment