# OTHM LEVEL 6
# Diploma in Occupational Health and Safety

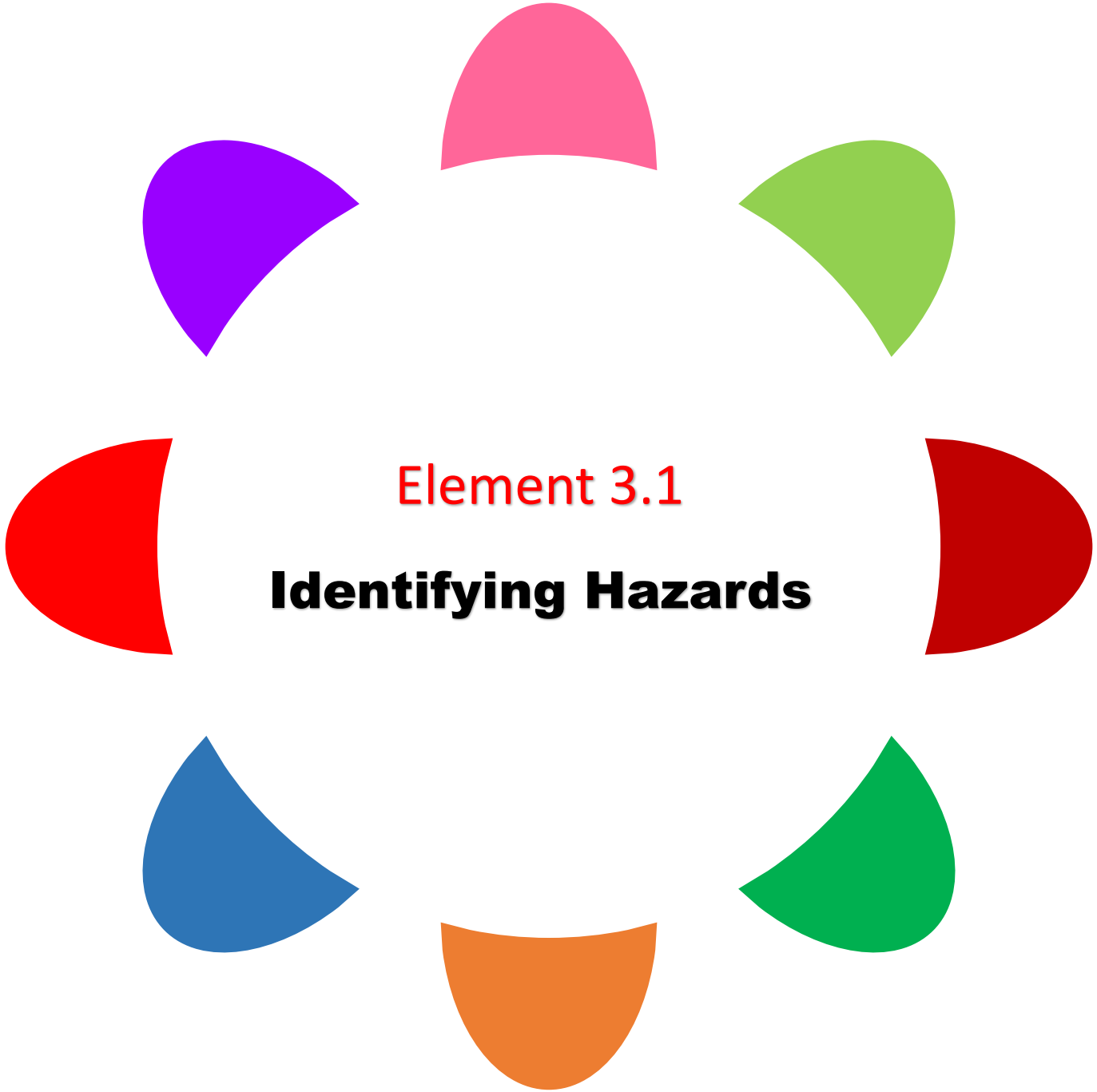
## Element 3

# Risk and Incident Management

GLOBAL SAFETY STUDIES
Safety Training & Consulting

# Learning Outcomes:

- Understand the processes and strategies for identifying hazards and evaluating risk levels when carrying out risk assessments in an organisation.
- Understand the strategies and techniques of risk control.
- Understand the models of loss causation, analysis of loss data and the importance of incident investigation.
- Understand processes and strategies to manage health and safety incidents in an organisation.



# Element 3.1

# Identifying Hazards

# Do you know?

- Hazard

  Something has the potential to cause harm

- Risk

  Combination of the likelihood of a harm and the severity of that harm

# Hazard Categories

- Physical
  - e.g. Electricity, Noise, Vibration, Radiation, Machinery
- Chemical
  - e.g. Mercury, Solvents, Carbon Monoxide
- Biological
  - e.g. Bacteria, hepatitis
- Ergonomic
  - e.g. manual handling, repetitive tasks
- Psychological
  - e.g. stress, violence

# Objectives of Risk Assessment

1. Prevent Death and personal injury
2. Prevent the direct and indirect costs that follow on from accidents
3. Changing unsafe practices
4. Check the effectiveness of control measures
5. Identifying groups at risk
6. Identifying specific hazards
7. Current and future training needs

# 5 Steps of Risk Assessment

# Step 1: Identify the Hazards

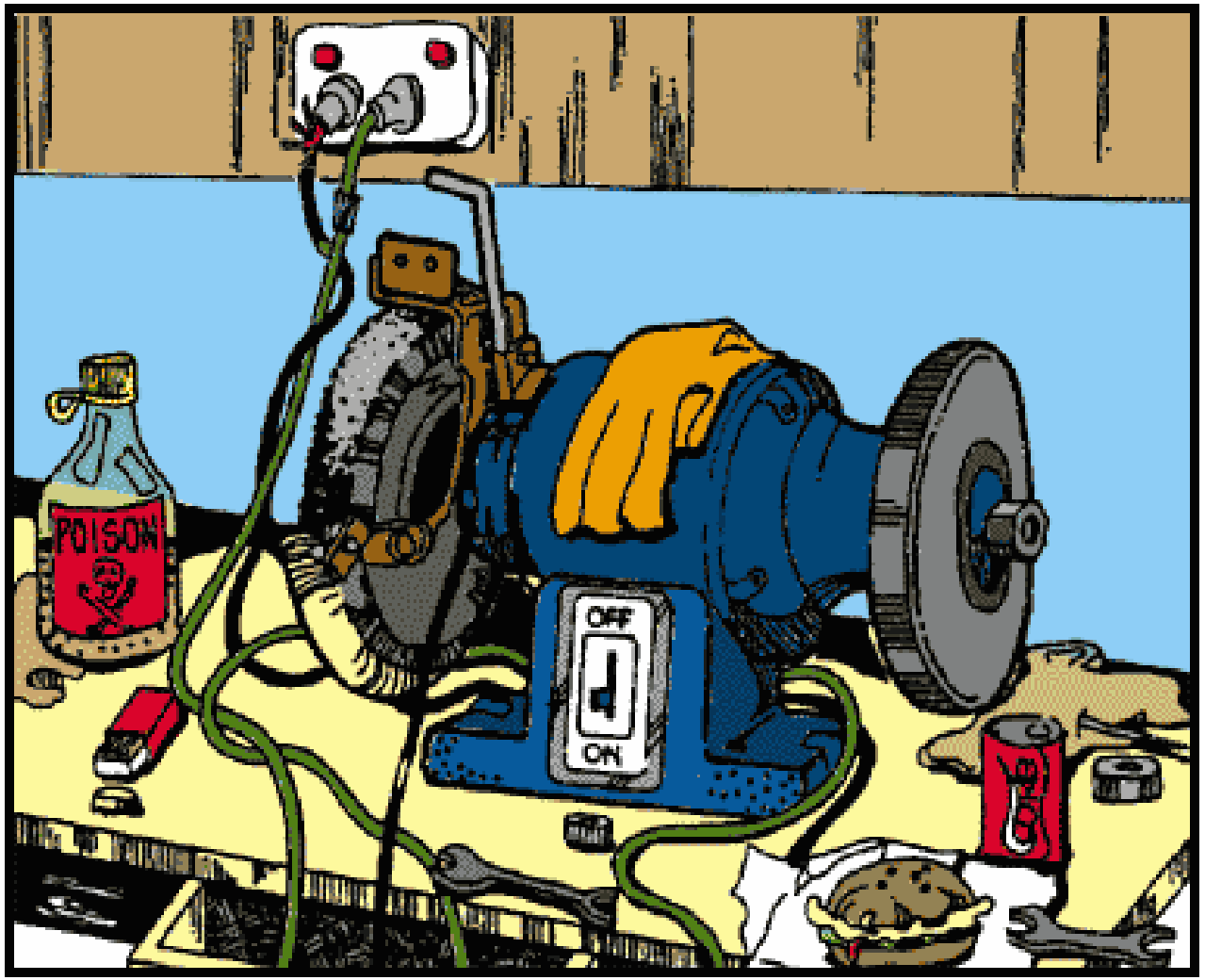
1. Safety Inspection
2. Accident Investigation Reports
3. Consulting with employees
4. Examine OHS Documents
5. Talking to the employees

# Step 1: Identify the Hazards

IDENTIFY HAZARDS IN WORKPLACE

- Physical
- Chemical
- Biological
- Ergonomic
- Psychological

# Step 1: Identify the Hazards



# Step 1: Identify the Hazards

# Step 2: Identify the People at Risk

- Employees
- Maintenance staff
- Cleaners
- Contractors
- Visitors
- Members of the public

# Vulnerable Groups

People at Special Risk:

- Young people
- New or expectant mothers
- Disabled workers
- Lone workers

# Step 3: Evaluate the Risk

## What is risk?

- It is a measure of likelihood of harm occurring and the severity of that harm.

Or simply say:

**Risk = Likelihood × Severity**

# Risk Assessment Matrix

**Example of Risk evaluation tool**

| Prioritising Risks | | | | | |
|---|---|---|---|---|---|
| | | Probability | | | |
| | | Very Likely | Likely | Unlikely | Highly Unlikely |
| **Consequence** | Fatality | **High** | **High** | **High** | **Medium** |
| | Major | **High** | **High** | **Medium** | **Medium** |
| | Minor | **High** | **Medium** | **Medium** | **Low** |
| | Negligible | **Medium** | **Medium** | **Low** | **Low** |

# Exercise 1- Evaluate Risk

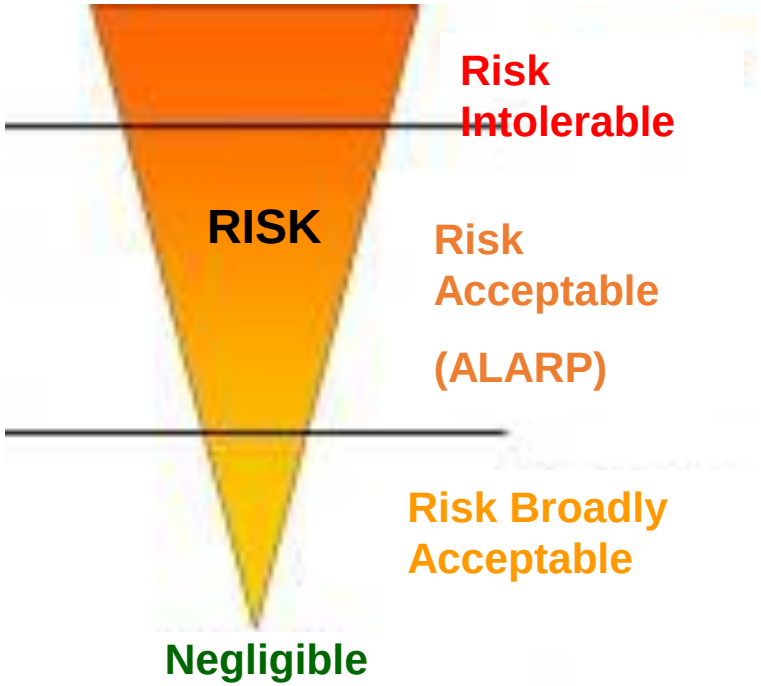
# Exercise 2 - Evaluate Risk

# Exercise 3 - Evaluate Risk

# ALARP

The results of the risk assessment must be prioritised:

- High priority
  - Immediate action required
- Medium priority
  - Action required within a weeks
- Low priority
  - Action required within months



# Step 4 – Record Significant Findings

## Typical content:

- The significant findings of the assessment should be recorded and kept.
- Control measures need to be implemented.
- There should be a record of all hazards, the risks they present and what precautions are in place to protect people from harm.

# Step 5 - Review

Significant change in:

- Process
- Substances
- Equipment
- Workplace environment
- Personnel
- Law

If it is no longer valid

- Accident
- Near miss
- Ill-health

Periodically e.g. annually

# Young Persons

- Under 18 (National Law)
- Lack of experience
- Physical and mental maturity
- Poor risk perception
- Influenced by peer group
- Eager
- Control measures:
  - Prohibit certain high risk activities, e.g. high risk machinery
  - Restrict work patterns and hours, e.g. no overtime
  - Train and Supervise

# Pregnant Workers

Hazards:

- Certain Chemicals, e.g. Lead
- Certain Biological Agents, e.g. Virus
- Manual Handling
- Temperature Extremes
- Whole Body Vibration
- Ionising Radiation
- Night Shifts
- Stress
- Violence

# Disabled Workers

## RISK TO THE DISABLE WORKERS

- Reduce mobility for safe access and egress and emergency evacuation
- Ability to access welfare facilitates
- Reduce sensory input to recognize hazards and emergencies e.g. hearing, eye sight
- Reduced communication ability e.g. speech, hearing or eyesight
- Reduce ability to lift, carry and move objects
- Ergonomic hazards such as reach distances

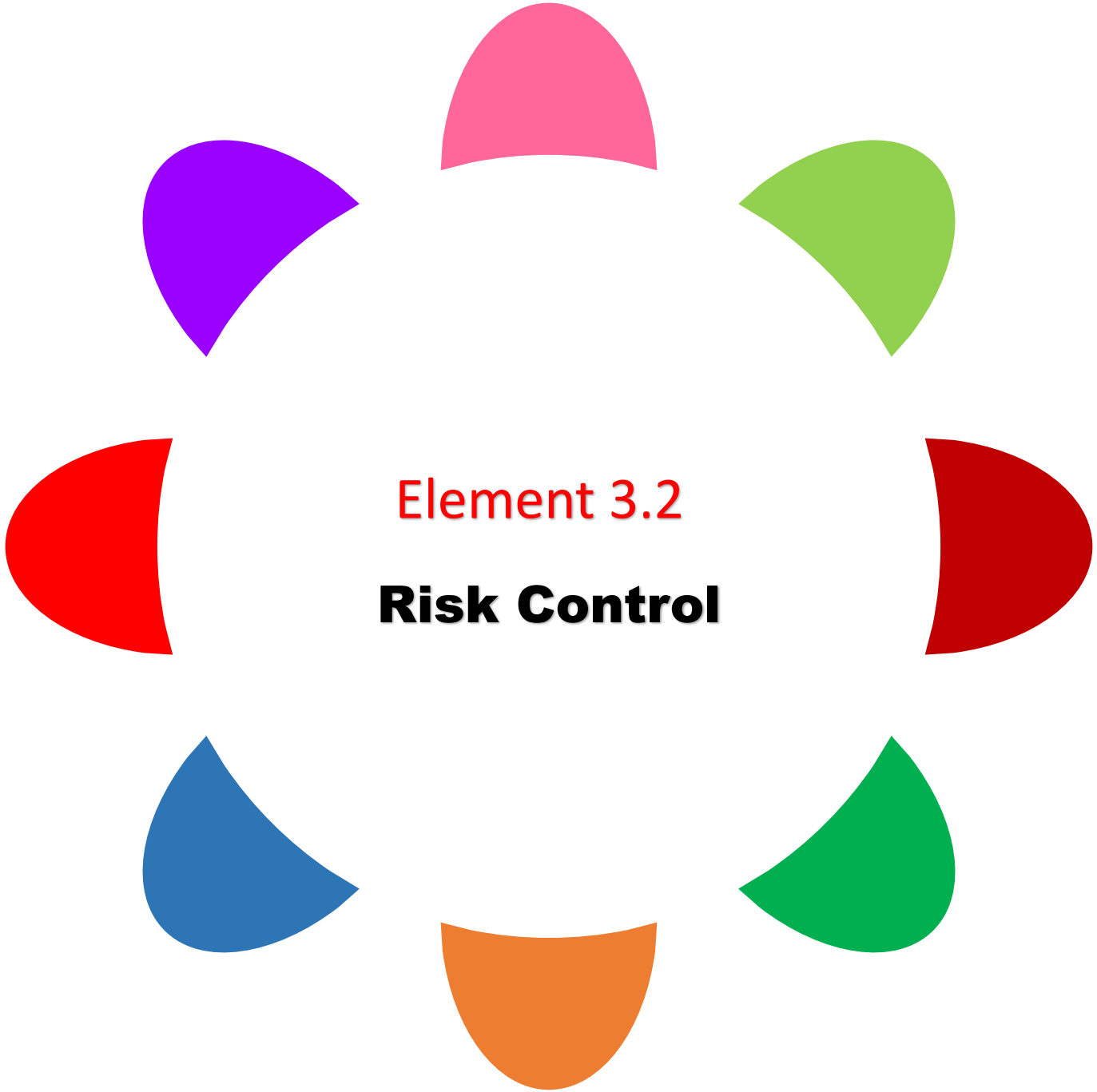
# Lone Workers

Workers especially vulnerable and more at risk:

- Of violence
  - e.g. : Prison Officer, Mental Health Nurse
- If they are injured or ill
  - e.g. : Confined Space Entry Stress

# Suitable and Sufficient Risk Assessment

- Ensure that all aspects of work activity are reviewed
- Ensure that non-routine operations are taken into account
- Identify the significant hazards and risks arising out of the work activity
- Evaluate the risk and Identify the control measures
- Identify and priorities the measures that need to be taken to comply with the relevant statutory provisions,
- Ensure that the RA is appropriate to the nature of the work
- Residual risk should be low
- Ensure staff undertaking assessment have sufficient knowledge and experience
- Ensure that the risk assessment is remain valid for a reasonable time



# Element 3.2

# Risk Control

# General Principles of Prevention

- Avoid risks
- Evaluate Risk Assessment
- Controlling hazards at source
- Adapting work to the individual
- Adapting to technical progress
- Substitute risk
- Policy , Safe system of work
- Giving priority to collective protective measures
- Training, information and supervision

# Hierarchy of Risk Control

- Elimination
  - Best method of dealing with a hazard is to eliminate it
  - Example: Outsourcing the painting activity
- Substitution
  - Substituting or replacing a hazard or hazardous work practice with a less hazardous one
  - Example : Mercury cell to Membrane cell
- Engineering controls
  - Isolation, total enclosure
  - Separation, segregation
  - Partial enclosure
  - Safety devices

# Hierarchy of Risk Control

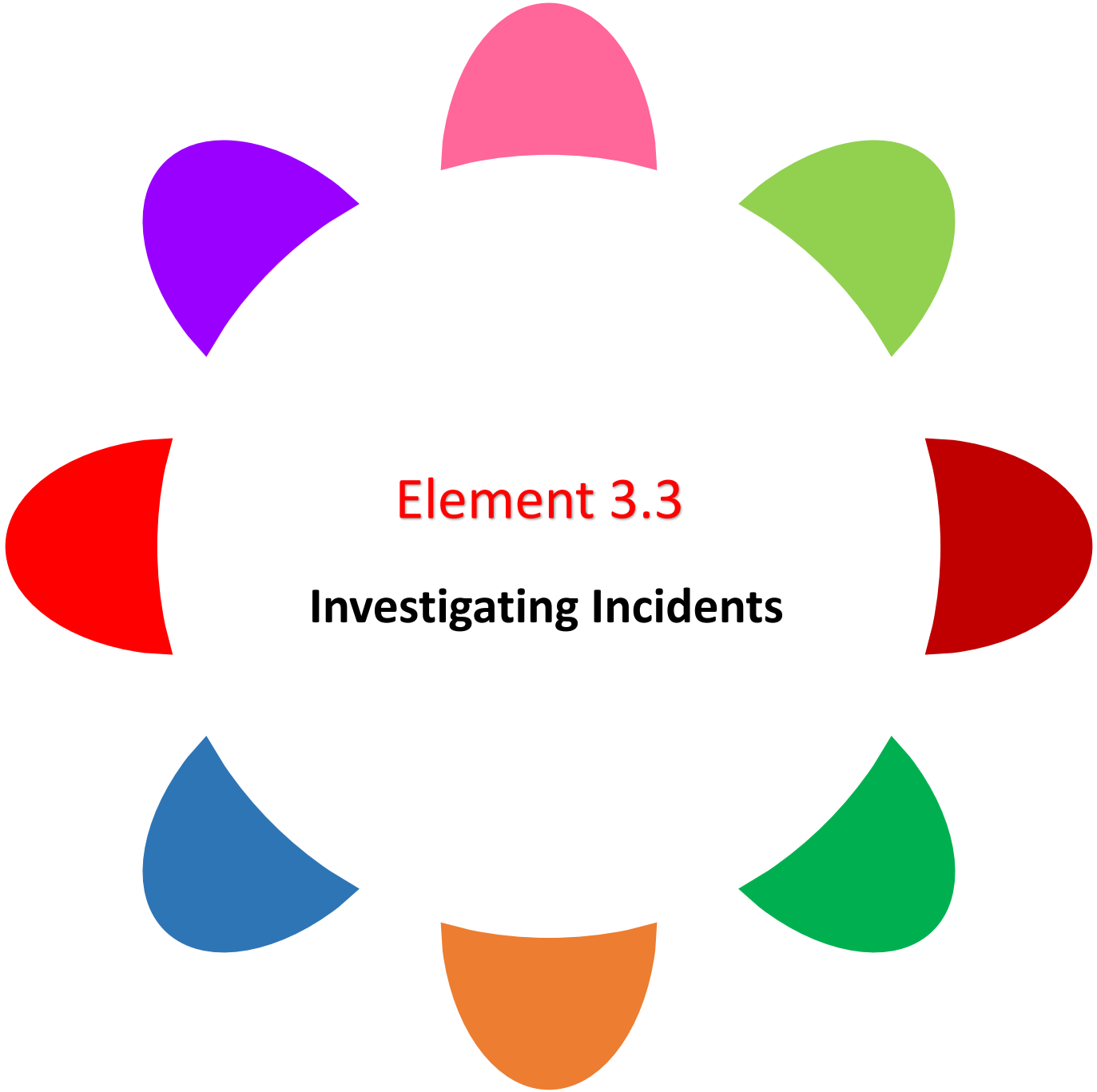
- Administrative controls
  - Safe systems of work
  - Reduced exposure
  - Reduced time of exposure, dose
  - Information, Instruction, Training and Supervision
- Personal Protective Equipment (PPE)
  - Provision of PPE Example – Helmet, Gloves, Mask etc.

# Personal Protective Equipment (PPE)

- Personal Protective Equipment Regulations 1992
- Supply suitable PPE:
  - Appropriate for risk
  - Ergonomic
  - Fits
  - Doesn’t increase overall risk
  - Complies with standards
- Suitable storage
- Information, instruction and training
- Enforce use of PPE
- Replace or repair damaged or lost items

# Personal Protective Equipment (PPE)

| Benefits of PPE | Limitations of PPE |
| --- | --- |
| • Interim control<br>• Some situations only control option<br>• Emergency back up<br>• Cheap (short term)<br>• Immediate protection | •Doesn't remove hazard<br>•Only protects the wearer<br>•Requires good fit<br>•Relies on wearer<br>•Requires training<br>•Uncomfortable<br>•May increase overall risk<br>•Incompatibility<br>•Unpopular so often unworn<br>•Fails to danger<br>•No good if wrongly selected<br>•Contamination<br>•Expensive long term |



# Element 3.3

## Investigating Incidents

# Reasons to carry out investigations

- Identify the causes
- Prevent recurrence
- Collect evidence
- Legal reasons
- Insurance purposes
- Staff morale
- Disciplinary purposes
- To update risk assessments
- Discover trends

# Reasons to carry out investigations

- **Unsafe Act :** It is an act of an individual who violates the safety norms.

➢ Rash driving

➢ Not wearing the PPE

➢ Working in an unsafe manner

➢ Horseplay

# Reasons to carry out investigations

- **Unsafe Condition :** an environment or a location which is unsafe to work or cause an accident

1. Opening on a floor
2. Stair case without handrail
3. Dusty atmosphere
4. Poor housekeeping
5. Defective equipment

# ACCIDENT INVESTIGATION PROCEDURE

Step 1

- Gather factual information

Step 2

- Analyse the information and draw conclusions

Step 3

- Identify suitable control measures

Step 4

- Plan the remedial action

# Step 1 - Gathering Information

- Secure the scene
- Identify witnesses
- Collect factual information
  - Photo/sketch
  - Measurements
  - Notes
  - Mark up plans
  - Samples
- Interview witnesses
- Examine documents

# Document Examination

- Site plans
- Company health and safety policy
- Risk assessments
- Training records
- Safe systems of work
- Permits-to-work
- Maintenance records
- Previous accident reports
- Sickness records

# Step 2 – Analysing Information

**Immediate Causes:**

- Unsafe **acts**
- Unsafe **conditions**

**Underlying or Root Causes:**

- Reasons behind the immediate causes
- Often failures in the management system
  - No supervision
  - No PPE provided
  - No training
  - No maintenance
  - No checking or inspections
  - Inadequate or no risk assessments

# Step 3 – Identifying Suitable Control Measures

For Immediate Causes

- Clean up the spill
- Replace the missing guard
- Relocate the trailing cable

For Underlying or Root Causes

- Training
- Maintenance
- Need to make changes in management system

# Step 4 – Plan the Remedial Actions

- Dangerous conditions must be dealt with immediately
- Interim actions may be possible
- Underlying causes will require more complex actions
  - will take Time, Effort, Disruption, Money
  - need for prioritisation

| Recommended action | Priority | Timescale | Responsible |
|---|---|---|---|
| Introduce induction training for all new FLT drivers | Medium | 1 month | Warehouse Manager |

# IMMEDIATE ACTION WHEN ACCIDENT HAPPENS

1. Provide First Aid to the causality
2. Call for  medical assistance if necessary
3. Make the accident area safe
4. Barricade the accident spot
5. Implement or initiate emergency plans if necessary
6. Report to family of the injured and  relevant enforcing authority if necessary

# LONG TERM ACTION WHEN ACCIDENT HAPPENS

1. Identification of witnesses
2. Form the accident investigation team
3. Conduct the investigation to know the causes
4. Suggest the remedial measures to prevent the accident
5. Implement the remedial measures
6. Communicate the accident investigation to all in the organization