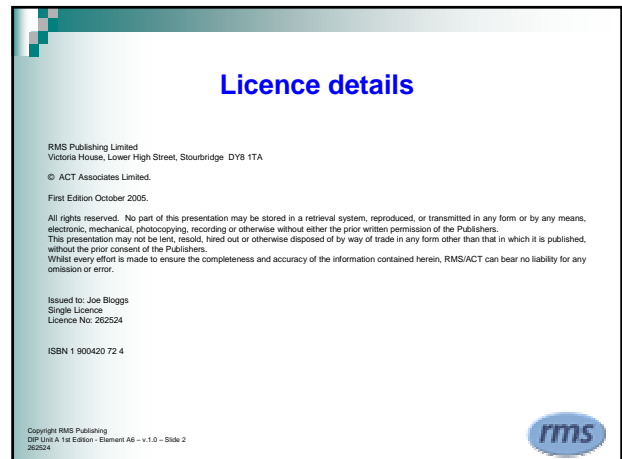



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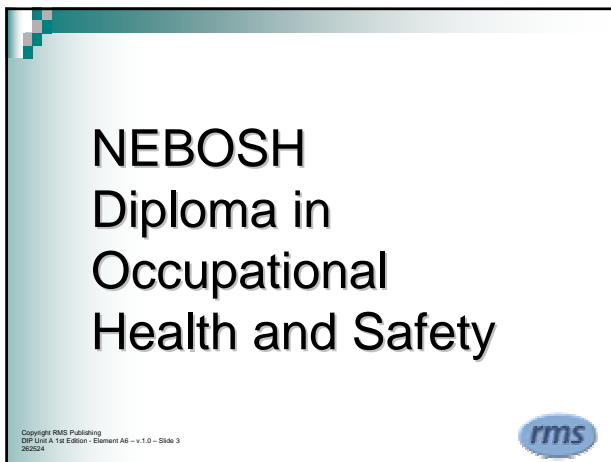

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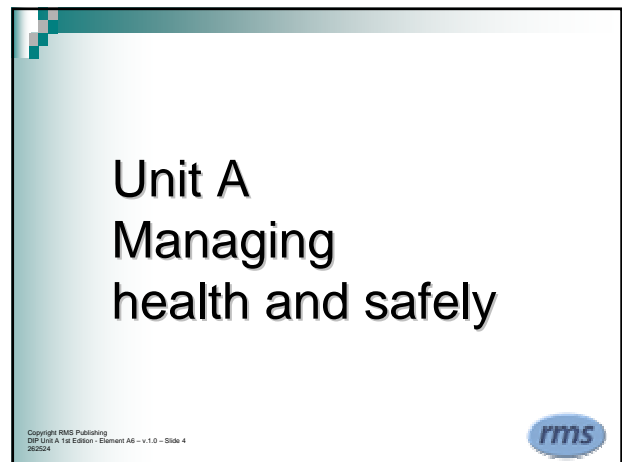

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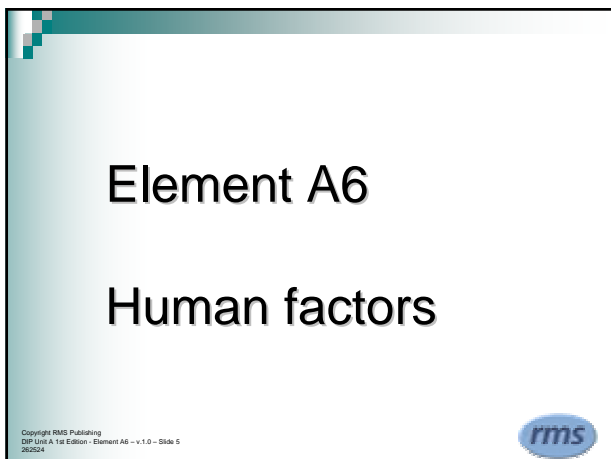

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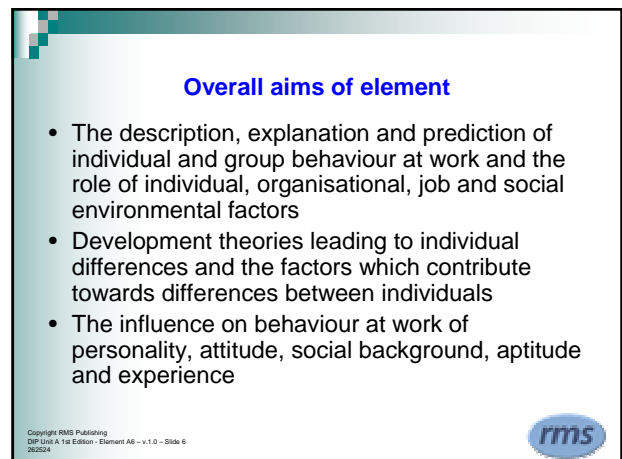

Unit A  
Managing  
health and safety

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Element A6  
Human factors


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**Overall aims of element**

- The description, explanation and prediction of individual and group behaviour at work and the role of individual, organisational, job and social environmental factors
- Development theories leading to individual differences and the factors which contribute towards differences between individuals
- The influence on behaviour at work of personality, attitude, social background, aptitude and experience


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### Overall aims of element

- The human sensory and perceptual processes and the perception of risk and the classification and prediction of human error
- Ergonomic principles relating to the employee and the work environment and their application to improve human reliability
- Techniques for improving human reliability


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### Contents of element

- The impact of human factors on health & safety
- Improving human reliability in the workplace
- Organisational factors
- Job factors


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### Contents of element

- The impact of human factors on health & safety
- Improving human reliability in the workplace
- Organisational factors
- Job factors

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### The impact of human factors in health and safety

#### Basic concepts

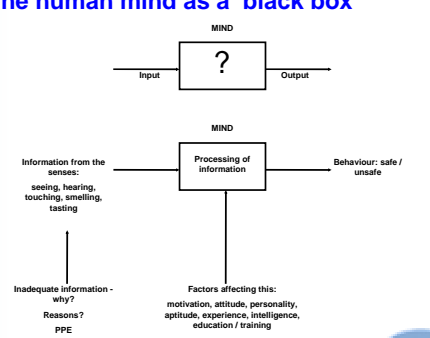
- Occupational psychology
  - Sociology
  - Anthropology

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### The impact of human factors in health and safety

#### The human mind as a 'black box'




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### The impact of human factors in health and safety

<p><b>Physical</b></p> <ul style="list-style-type: none"> <li>• Gender</li> <li>• Build</li> <li>• Capability / strength</li> <li>• Manual handling</li> <li>• Health</li> </ul>	<p><b>Mental</b></p> <ul style="list-style-type: none"> <li>• Attitude</li> <li>• Motivation</li> <li>• Perception</li> <li>• Capability</li> </ul>
--	---

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The impact of human factors in health and safety

### Key theories of human motivation

- FW Taylor
- Mayo (Hawthorne experiments)
- Maslow (hierarchy of needs)
- Contemporary theory (complex), e.g Hertzberg

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The impact of human factors in health and safety


### Individual decision making processes

Description of on-line & off-line processing

Rasmussen's research

- Skill-based behaviour
- Rule-based behaviour
- Knowledge-based behaviour

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Rasmussen's work added to by Reason:

- Violations
- Breaking the rules for various reasons
- Common practice
- To get the job done
- To save time
- Benefits from breaking the rules

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The impact of human factors in health and safety


### HSG48 Model

HSG48 "Reducing Error & Influencing Behaviour" 1999  
Based on the work by Rasmussen and Reason

Human failures - two types:

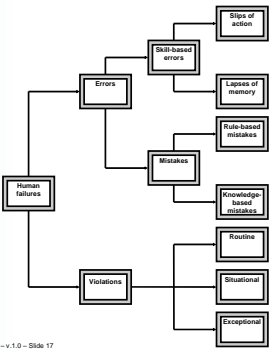
- **Errors** - skill-based errors / mistakes
- **Violations** - deliberate deviations from the rules or procedures

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The impact of human factors in health and safety

### HSG48 Model




```

    graph TD
      HF[Human Factors] --> E[Errors]
      HF --> V[Violations]
      E --> SBE[Skill-based errors]
      E --> M[Mistakes]
      SBE --> SOA[Slips of action]
      SBE --> LM[Lapses of memory]
      M --> RBM[Rule-based mistakes]
      M --> KBM[Knowledge-based mistakes]
      V --> R[Routine]
      V --> S[Situational]
      V --> EX[Exceptional]
  
```

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Causes of Human Failure



The impact of human factors in health and safety

### Factors contributing to individual differences

- Psychological
- Sociological
- Anthropological

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