



INTEGRATION OF RADIATION PROTECTION INTO GENERAL HEALTH AND SAFETY TRAINING?

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and radiation protection department**

Example of an interdisciplinary health, safety and environment scenario

Laboratory for microbiological and genetic experiments

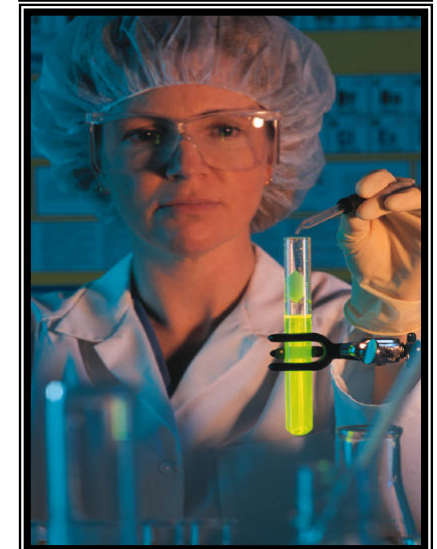
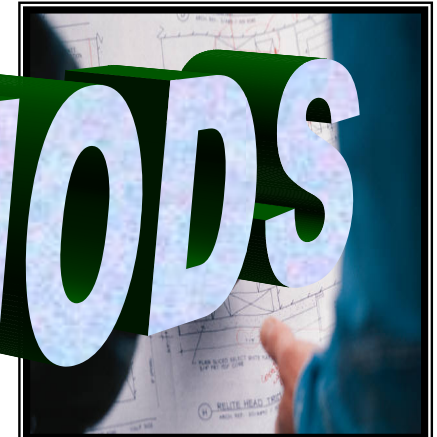
From construction planning to operation:

- Fire protection
- Health and safety (explosive)
- Engineering/electrical
- Health and safety (ionising/non-ionising)
- Control of biological agents
- Control

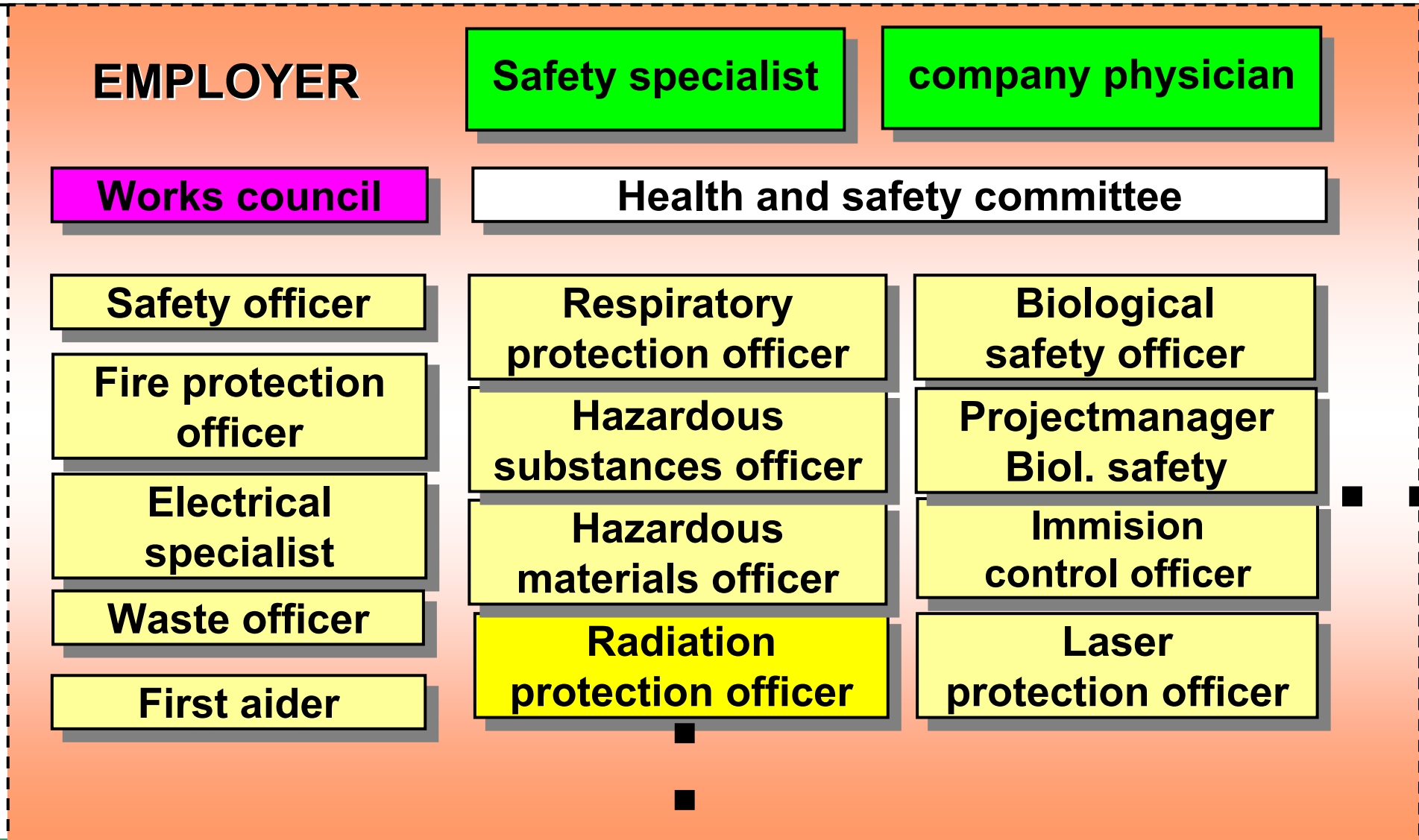
Health, safety & environment

Occupational health, safety & environment services

HSE METHODS



Possible organisation of health, safety & environment

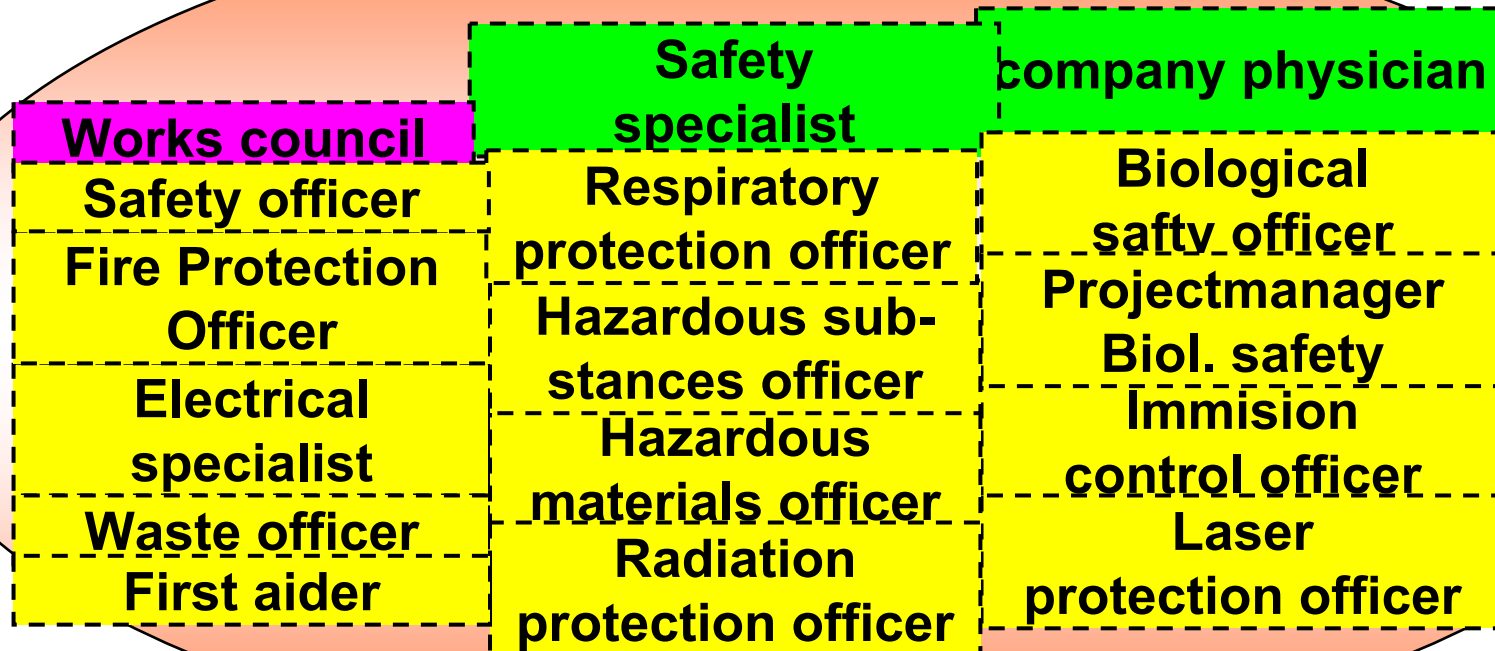


Possible organisation HSE

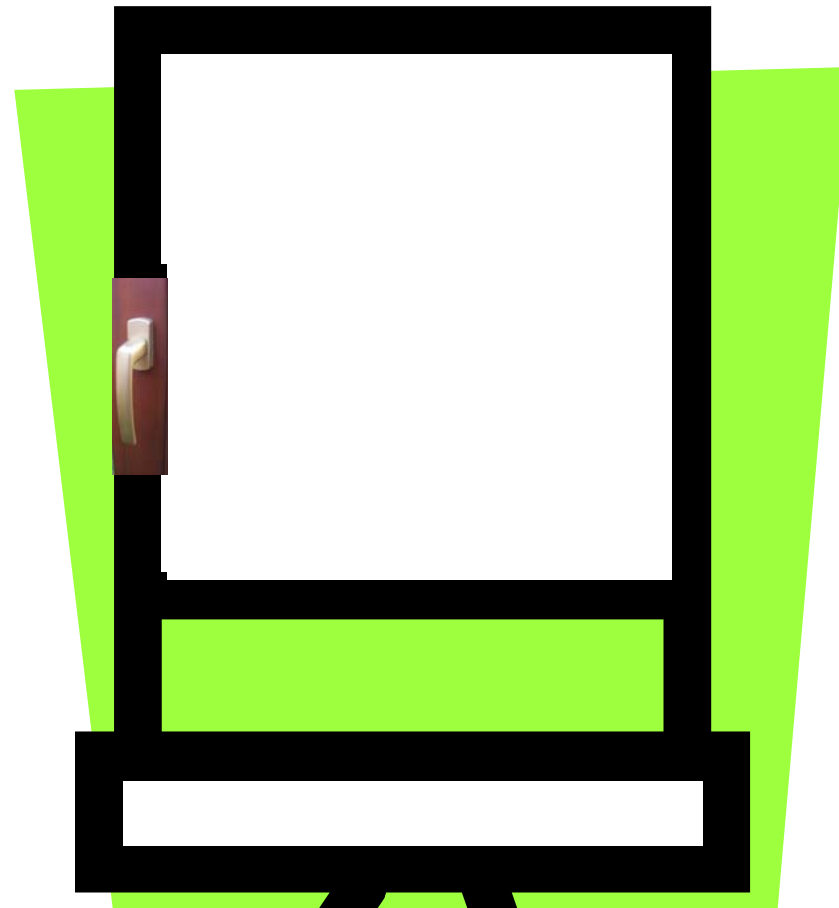
EMPLOYER

**REAL DECISION-MAKING TOOL
for the
EMPLOYER**

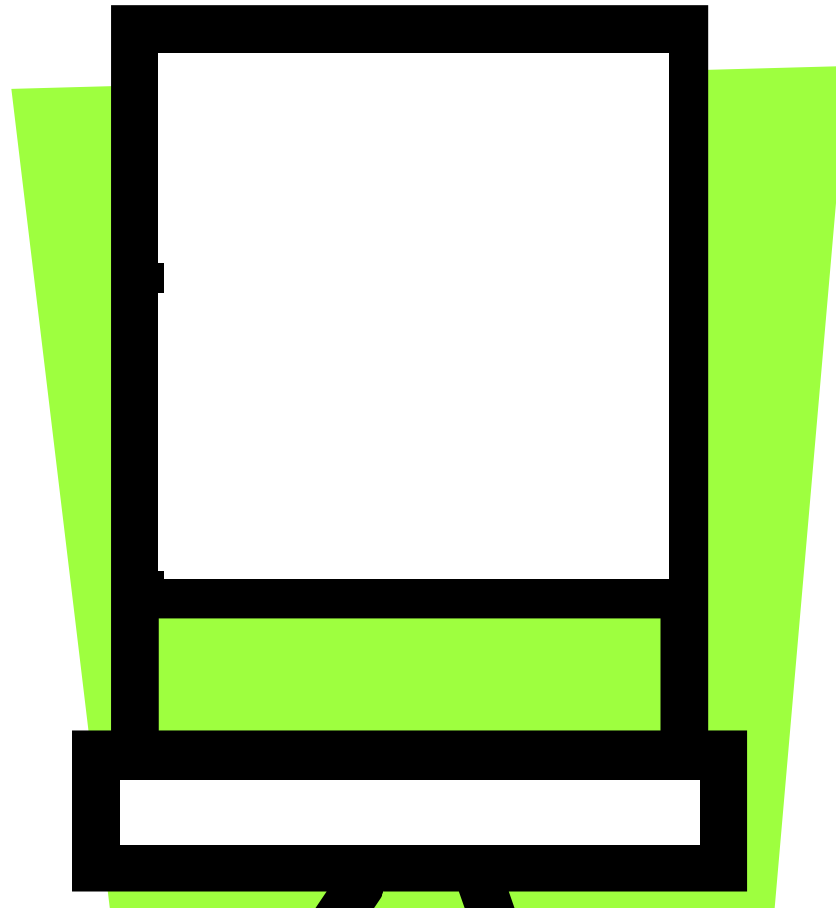
ONE RECOMMENDATION



The hammer- and window problem I

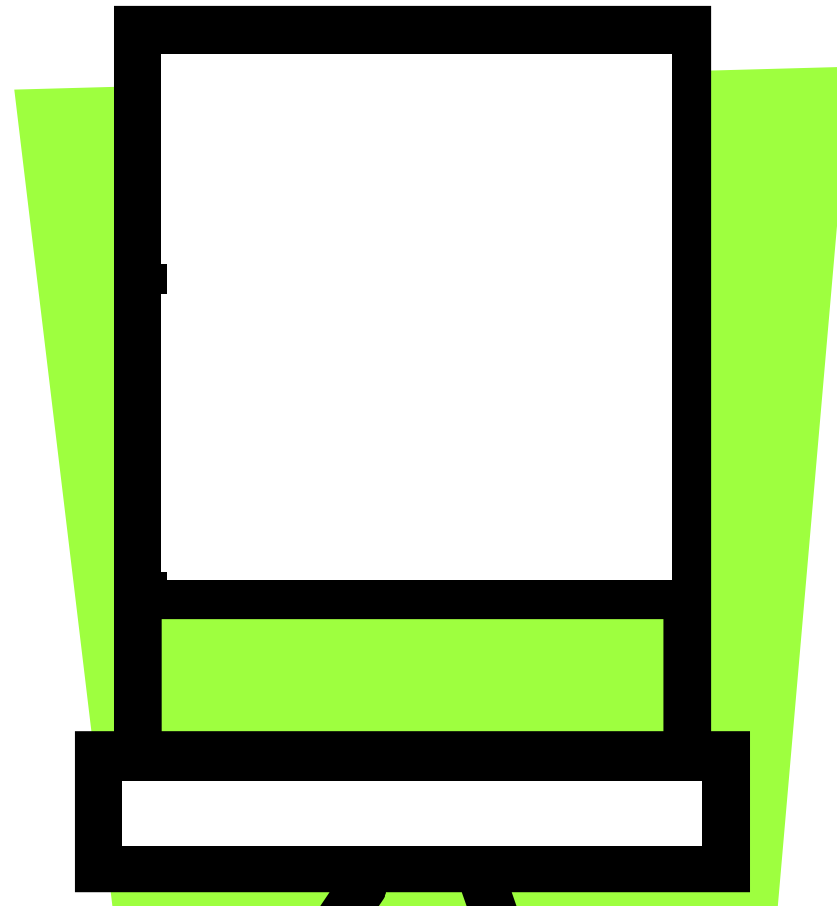
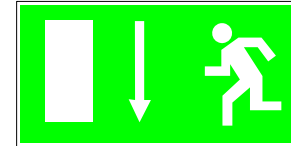


The hammer- and window problem II



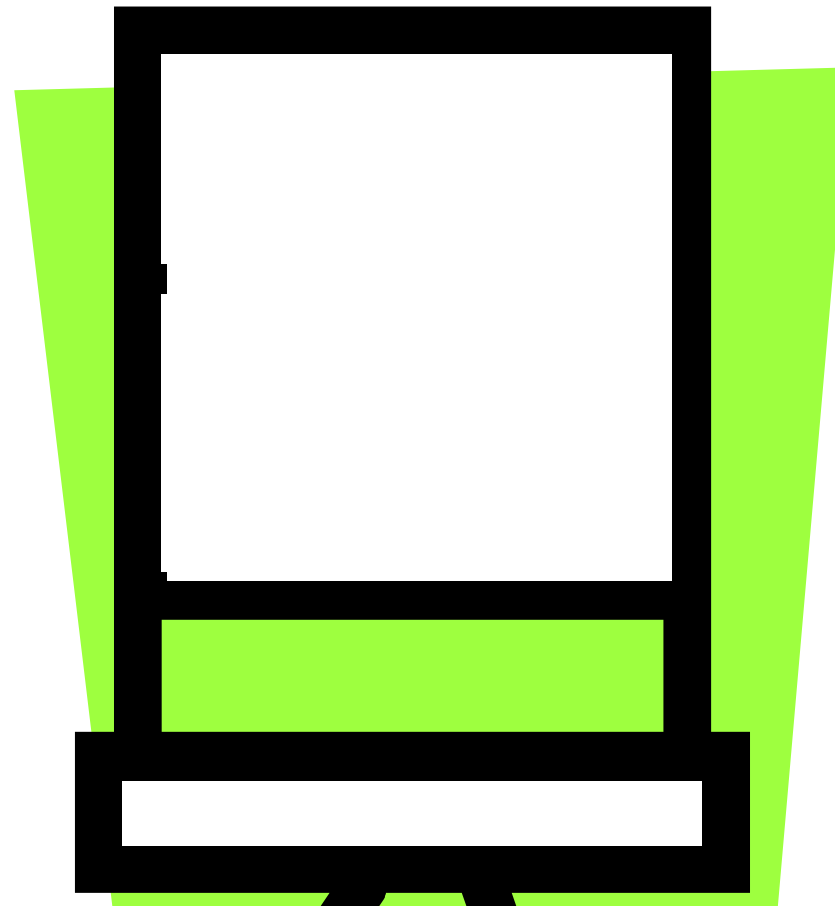
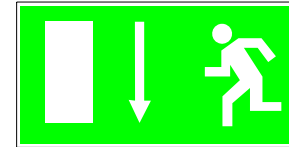
The hammer- and window problem III

In case of emergency, break glass with hammer



The hammer- and window problem IV

In case of emergency, break glass with hammer

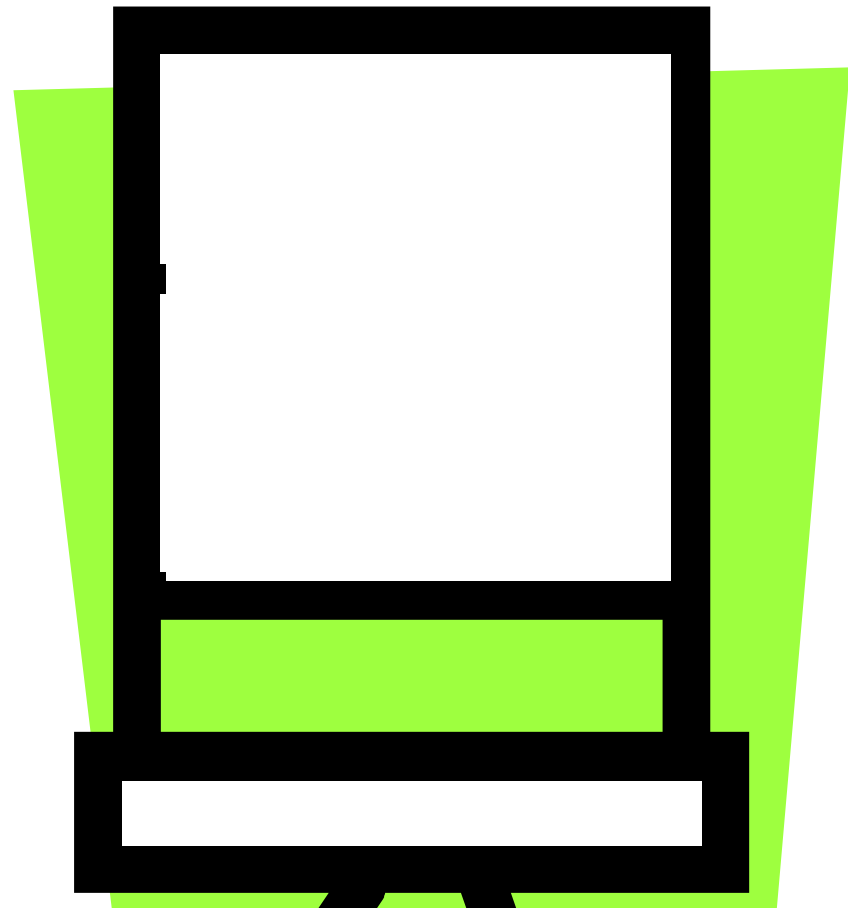
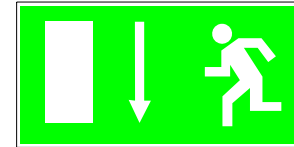


The hammer- and window problem V → Protection objectives

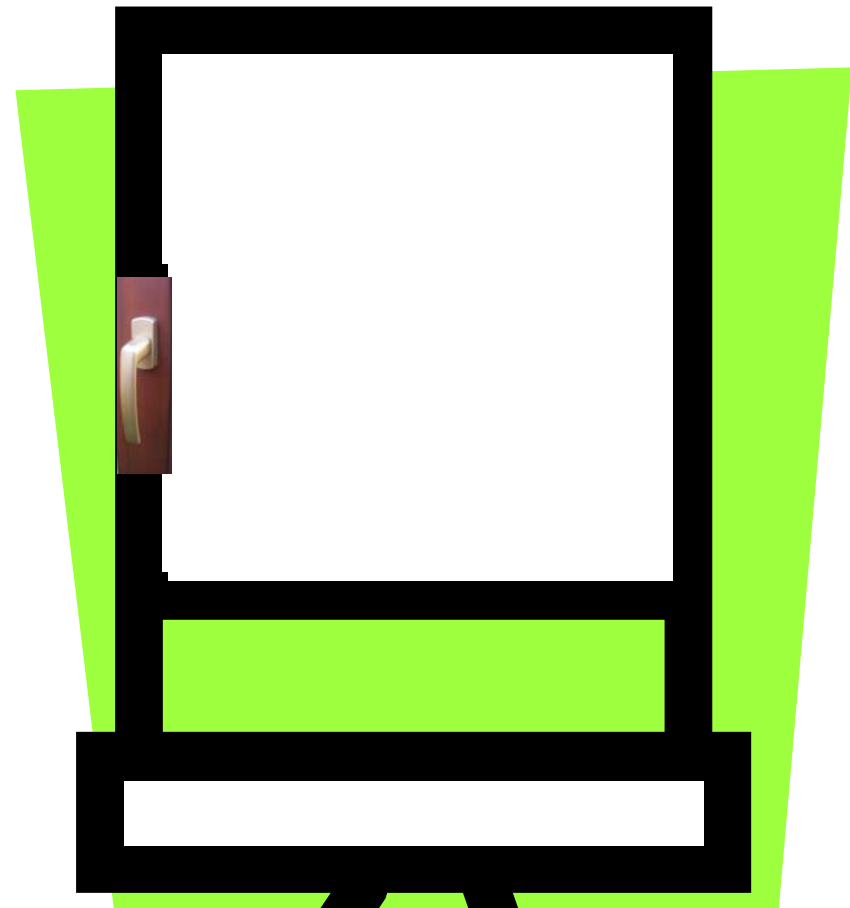
- ◆ **Radiation protection officer:**
Low pressure must be permanently maintained.
- ◆ **Fire protection officer:**
In the event of fire, it must be possible (without any aids) to leave the laboratory via a second escape route – here window.
- ◆ **Safety specialist:**
The second escape route must be usable without any further risks.

The hammer- and window problem VI

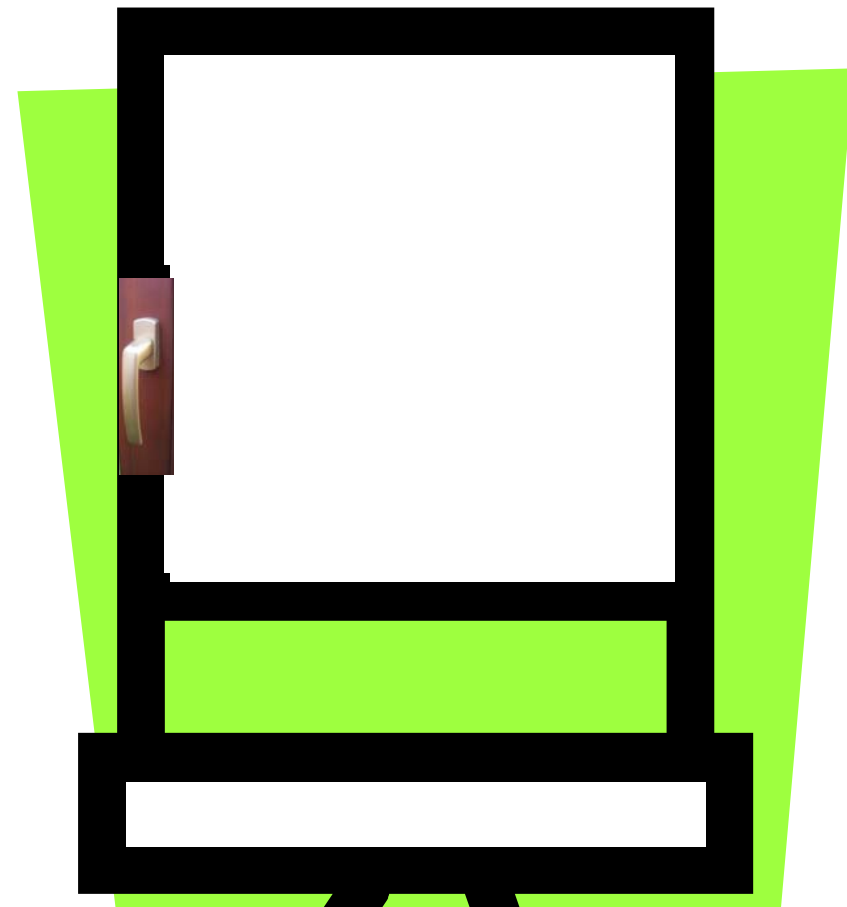
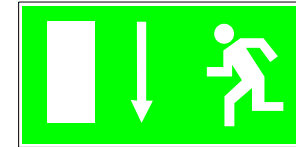
In case of emergency, break glass with hammer



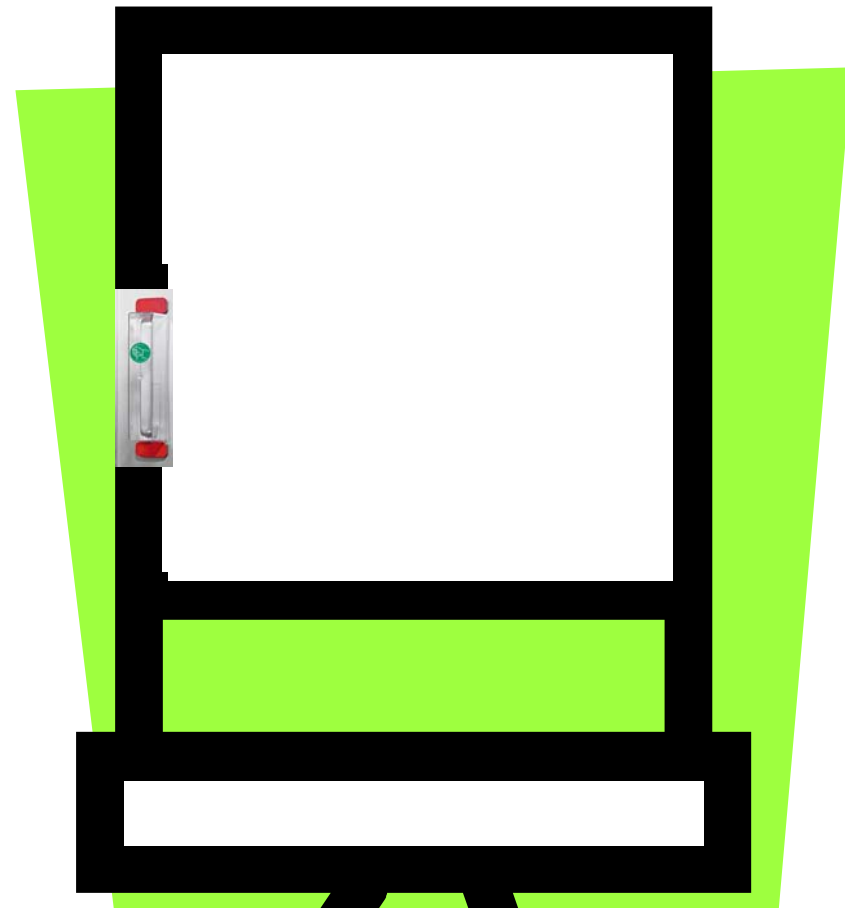
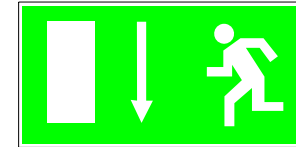
The hammer- and window problem VII



The hammer- and window problem VIII



The hammer- and window problem IX



The hammer- and window problem X → Actions

- ◆ **Technical:**
 - Installation of a safety-cover over the window handle
 - Installation of a means to reach the window where necessary

- ◆ **Organisational:**
 - Marking of the window
 - Second escape route must be kept free of any objects, hazardous substances and radiating devices.
 - Employee instruction

- ◆ **Personal:**
 - Not required

Risk evaluation (RE)

Legal basics :

„General obligations on employers“:

- **„Evaluate the risks to the safety and health of workers, inter alia in the choice of work equipment, the chemical substances or preparation used, and the fitting-out of work places.“**
- **Find out „the preventive measures“ to improve „the level of protection afforded to workers with regard to safety and health.“**

(Article 6 (3) a - Council Framework Directive 89/391/EEC)

INFO: Workflow for risk evaluation (RE)

1. Specification of the area to be evaluated
2. Identification of the risks
3. **Specification of the protection objectives**
4. **Specification of the**
 - **technical,**
 - **organisational and**
 - **personal protective measures**
5. Implementation of the measures
6. Monitoring of initial implementation, effect and continued implementation
7. Documentation

General principles (OSH – german ArbSchG)

Required action: § 4 Abs.1

- **Prevention of causes and minimisation of remaining risks**

Sequence of protective measures: § 4 Abs.5

- **Technical**
- **Organisational**
- **Personal**

Consideration: § 4 Abs.3

- **State of art and other substantiated findings from the field of human factors engineering**

General principles (german StrlSchV / RöV)

Required action: § 4 Abs.1 ↔ StrlSchV § 6 / RöV § 2c

- **Prevention of unnecessary (contamination and) radiation exposure and minimisation even below the exposure limits.**

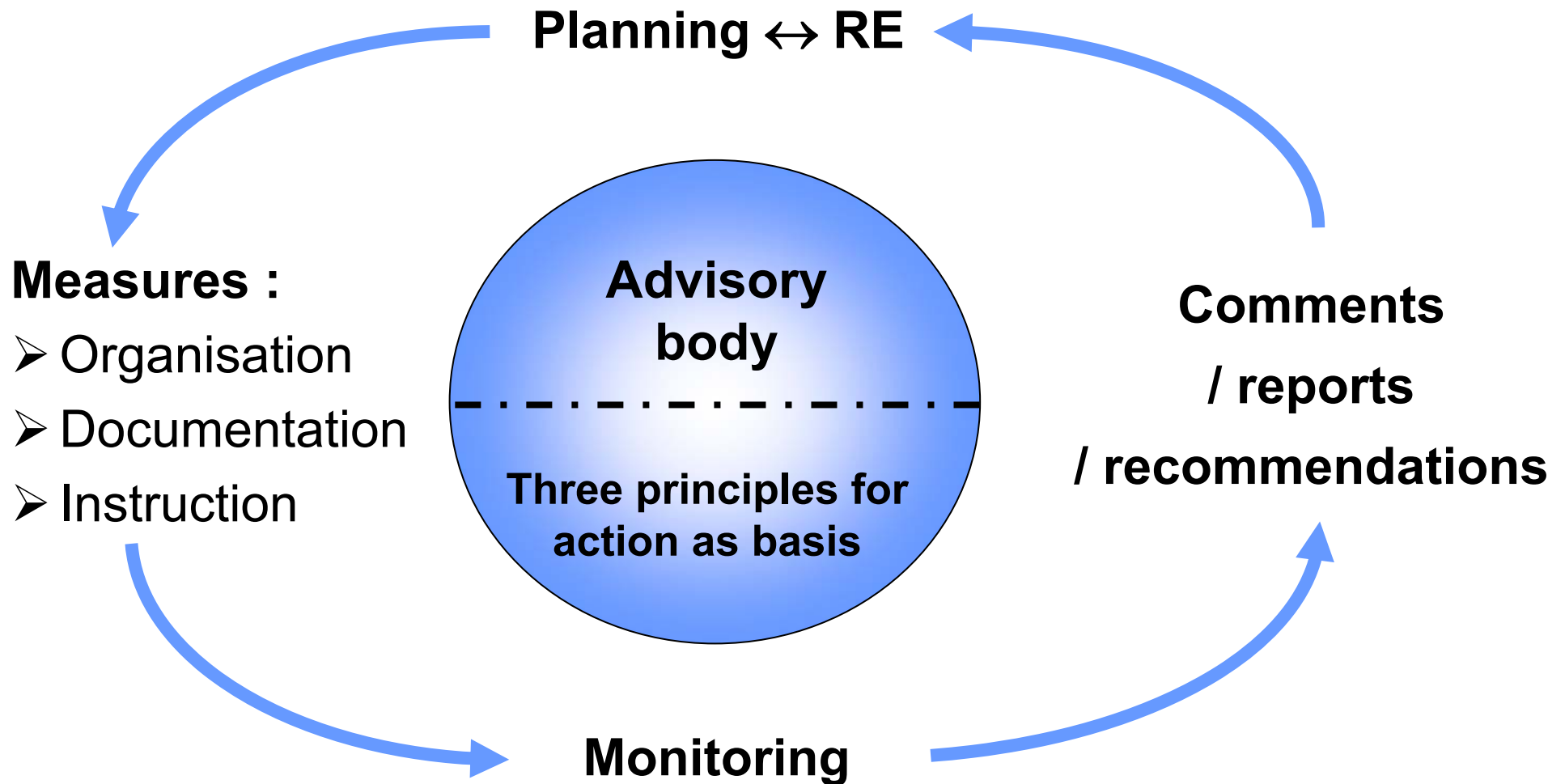
Sequ. of protect. measures: § 4 Abs.5 ↔ StrlSchV § 43 / RöV § 21

- **Protection for persons exposed to radiation at work should primarily be provided by means of structural and technical devices or suitable work methods.**

Consideration: § 4 Abs.3 ↔ StrlSchV § 6 / RöV § 2c

- **State of (research and) of the art.**

The continuous improvement process in prevention



What did we learn?

- The different safety experts
 - use the same **principles** to be applied when specifying the necessary measures.
 - have different **protection objectives**.
- The **risk evaluation** can inter alia be used as a tool to find out the safety experts, which have to be involved.
- The **continuous improvement process in prevention** is valid for all safety experts.

Answering the original question

„Integration of radiation protection into general health and safety training?“

- **Only the basic different topics concerning the radiation protection officer should be integrated, e.g. protection objectives or special principles.**
- **The integration should not occur only one way.**

Answering the real question

How can we improve the collaboration of the different safety experts?

In the initial and continuing training of the different safety experts should be integrated the topic:

„Synergies in Health and Safety“ with the sub-topics

→ Other safety experts and their protection objectives

→ Risk evaluation

→ The continuous improvement process in prevention

Practical exercises, e.g. on risk evaluation, would complete the package.

**(Kooperationskreis : Synergien in der betrieblichen Sicherheit
„Synergies in Health and Safety“ Cooperation group)**

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**INTEGRATION OF RADIATION PROTECTION
INTO GENERAL HEALTH AND
TRAINING?**

**Thank you for
your attention!**