



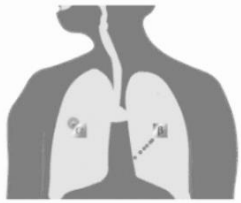

7.1 Contamination and irradiation

- Contamination is about getting radioactive material where it shouldn't be
- Contamination can be prevented by making sure the material is a solid that can't dissolve in water, and then keeping track of it
- You can remove contamination by washing the radioactive material off
- Irradiation is about the radiation itself hitting someone or something
- If you have to be near radioactive material then you reduce irradiation by using shielding, increasing distance, and reducing exposure time

Sparkler = Stuff ("contamination")	Sparks = Radiation ("irradiation")
	
<ul style="list-style-type: none">• Has a form, like dust, or liquid or gas• Sticks around• Can move about• Eventually stops being radioactive but doesn't disappear	<ul style="list-style-type: none">• Lasts a tiny fraction of a second• Doesn't go very far• Easy to block• Doesn't make other things radioactive

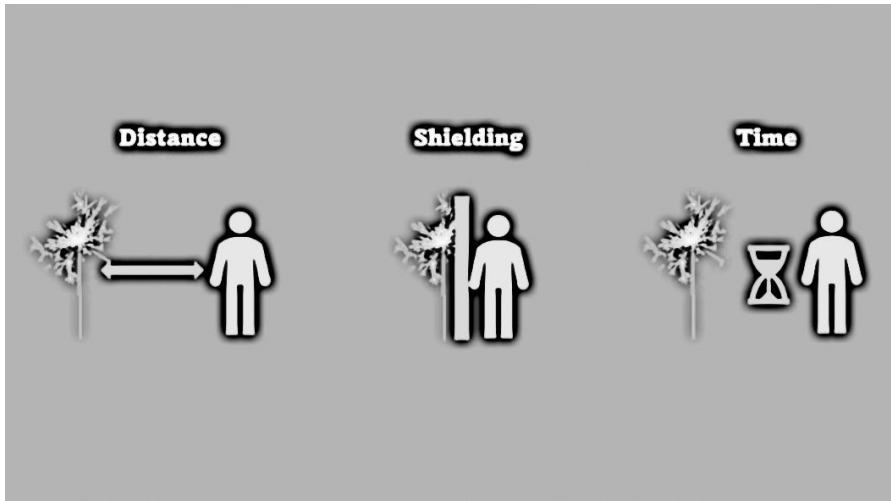
7.2 Effects of radiation on living things

- Nuclear radiation is hazardous because of the ionisation it causes inside cells
- The ionisation disrupts chemical reactions that make cells work
- In high doses this can cause radiation sickness
- In low doses it can damage DNA, which can increase the risk of cancer
- Alpha and beta radiation are more hazardous if the radioactive material is inside the body
- Gamma can be hazardous both inside and outside the body

	Alpha and Beta	Gamma
Hazard location		
	Inside body	Outside body
Precautions	Avoid contamination	Avoid irradiation

7.3 Managing risks

- There are three approaches to reducing radiation dose
 - Putting something in the way - shielding
 - Increasing the distance between people and the source
 - Reducing the time spent being irradiated



7.4 Risk perception

- Statistically nuclear radiation is comparatively low risk
- Some people fear it because they misunderstand the science
- Other people fear it for rational but not scientific reasons

