Cooking and Communication using Waves P1

Microwaves (Cont.)

There are some concerns that microwaves emitted by mobile phones could have a **harmful effect**. For example, microwaves *could* cause ear or brain tumours, brain damage or changes to DNA.

If using mobile phones affects people's health, then children could be more at risk from the microwave signals because their skulls are very thin. The potential risk is increased if the mobile phone is used more frequently.

There is also public concern about mobile phone transmission masts and the possible dangers to people who live near them.

Scientists publish studies into the effects of microwave radiation from mobile phones and mobile phone transmission masts. This enables other scientists to share their studies and check data from other studies.

HT Sometimes scientists publish conflicting evidence about studies such as mobile phone safety. In such cases, society must make choices (by balancing risk and benefit) about their own mobile phone use and/or whether to live near to a mobile phone mast.

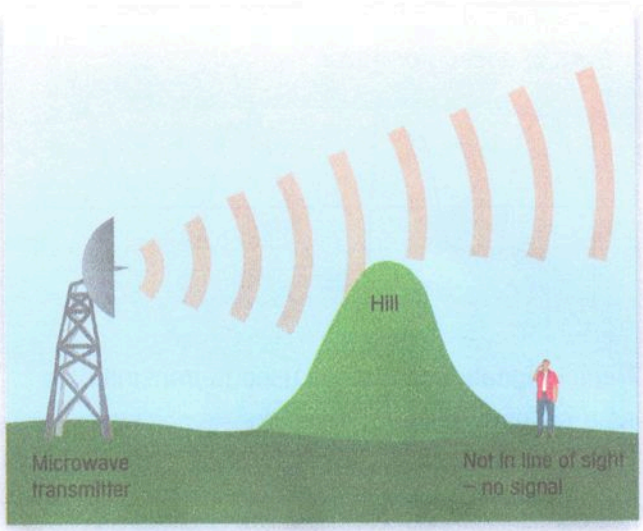
Microwave Signals

Microwave signals can be lost or affected by:

- large obstacles such as trees or mountains, which block the signal. Microwaves are not diffracted around large objects
- poor weather conditions and large areas of surface water
- the curvature of the Earth
- **interference** between signals.

Some of the problems can be reduced by:

- limiting the distance between transmitters
- positioning masts high on top of hills and/or tall buildings.



Quick Test

1. Other than heating food, state two uses of microwaves.
2. What type of molecules in foods absorb microwaves?
3. What happens to light when it hits a glass–air boundary at an angle above the critical angle of substance?