

# Design and Technology

Alarms

Lesson 1

L/O: To investigate what alarm systems are used for and how different types of switches are activated.

(1 minute challenge)  
How many different kinds of alarms can you think of?

Make a list.



Where would you find these alarms?  
What are they for?



# Answers

- The smoke alarm will warn us of smoke and possible fire. It is very useful especially when we are asleep. It makes a very loud bleeping noise to alert us to danger.
- The motion sensor will detect movement and can be used as an anti-theft device. It makes a very loud noise if activated by movement.

Where would you find these alarms?  
What are they for?



# Answers

- This alarm will warn us of fire. It makes an extremely loud noise to alert us to danger and let us know that we should move away to safety.
- This alarm is used to wake us up after we have been asleep. We use them so that we aren't late for school or work.

Did you notice how many different kinds of switches these alarms had?



Alarms use a wide variety of different switches, depending on what the alarm is used for.

### **A push-to-break switch**

This type of switch breaks the circuit when the button is pressed. In this case, the alarm would sound when an item was lifted off the switch.

What kind of alarm would suit this kind of switch?

### **A push-to-make switch**

This type of switch closes the circuit when the button is pressed so the alarm sounds when the button is pressed. This could be used, for example, to detect when someone steps on something.

What kind of alarm would suit this kind of switch?





## A tilt switch

Also known as a mercury switch, this switch contains electrical contacts as well as mercury, which conducts electricity. When the switch is tilted the mercury hits the contacts and so completes the circuit. This kind of switch can be used to detect movement.

## An on/off switch

And, of course, there is the simple on/off switch. When the button is pressed, the alarm sounds. When the switch is turned off, the alarm stops.

What kind of alarm system would suit this kind of switch?

# Activities

**Tricky:** Complete sheet 1A using the scenario cards and the extra pictures in the activity pack.

**Trickier:** Complete sheet 1B using the scenario cards and the extra pictures in the activity pack.

**Trickiest:** Complete sheet 1C using the scenario cards and the extra pictures in the activity pack.

# AFL

1. Name at least 2 of the different types of switch
2. Explain how they work and where they might be used in an alarm.

