

## Inspire Computing Year 6 Workbook Answers

### Unit 1

#### Lesson 1

**1 a)** Example: A database is information, or data, which is stored in a computer in records. Each record is divided into categories called fields.

**b)** Examples: schools, libraries, banks, gyms, sports clubs or any large organisation

**2 and 3** Student's own answers

**4 record:** one student and all the information linked to them; **field:** a piece of information about the student, such as height; **database:** the whole collection of class records

#### Lesson 2

**1 and 2** Student's own answers

**3 a)** the information you want the database to find **b)** a filter is used narrow down results based on a particular criteria **c)** to order records by a category either alphabetically or numerically in ascending or descending order

#### Lesson 3

**1** Examples: different fonts, font sizes, colours, borders, text style, alignment features

**2** Layla: text; 27/05/1977: date; A113: alphanumeric; 27: number; Oct 3: date; 1.75: number

**3** A filter will show only the parts of the table that you have selected and will hide the rest. This is very useful if you have more than one query you want to find. Using the sort function on a table is easy to do with one criterion, but a table can't sort two different columns at the same time. Using filters allows you to select the criteria and sort afterwards if necessary.

#### Lesson 4

**1** Examples: DBMS can link multiple databases, DBMS can also set access rules for different users.

**2** Examples: assessment grades, student records, staff records

**3**

Database	Students	Teachers	Admin staff	Headteacher
Library books	✓	✓	✓	✓
Library users		✓	✓	✓
Assessment results		✓	✓	✓
Staff records			✓	✓

**4 a)** Read-only means the records stored within it cannot be changed by anybody. **b)** It prevents important results from being accidentally changed once entered.

## Lesson 5

1 Examples: staff list, stock list, customers or members, staff details, salary details

2

Member database	Needed	Not needed	Reason
Personal details	✓		Required to set up membership
Bank details	✓		Only if monthly payments are taken
Bank PIN		✓	Not relevant to membership
Ethnicity		✓	Not relevant to membership
Car details		✓	Not relevant to membership, unless car parking is controlled
Profession		✓	Not relevant to membership

3 Examples: medical records, financial information, bank records, school records, home and employment details

## Lesson 6

1 C

2 A primary key is the field in the table that is unique and is used to linked multiple databases together.

3 **registration:** text [VARCHAR]; **passengers:** integer [INTEGER]; **year of release:** date [DATE]

4 B and D

## Lesson 7

1 A simple search can only search for a single word but an advanced search can automatically filter the results based on specific criteria.

2 Examples: keywords to include, keywords to not include, language choice/date ranges, search within specific websites

3 The + (plus) sign is placed between keywords to find pages that contain all of the words. Quotation marks are used to search for a (an) exact phrase with more than one word, rather than individual keywords. The \* symbol, also called a wildcard, represents any missing or unknown character in a search.

## Lessons 8 and 9

1

Name	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Criteria 5
Penny	Voice control	Rechargeable	Waterproof	Less than £150	Colour choice
Rio	Voice control	Sub-woofer	Less than £200	Colour choice	

2 When researching online, using basic or advanced methods, remember to carefully judge the results you find. Advertising, or paid-for results, will often appear at the top of the list of websites, and may not always be the most suitable. It is also important not to assume the first two or three are the best results.

## Lesson 10

1

Brand/Model	Voice control	Rechargeable	Water proof	Sub-woofer	Colour choices	Price (£)	Most suitable for
NoiseBox A	Yes	Yes	Yes	No	Yes	120	Penny
NoiseBox B	Yes	Yes	Yes	No	No	250	Neither
SPKR50	Yes	No	Yes	Yes	Yes	195	Rio
Msx	Yes	Yes	No	Yes	Yes	160	Rio
SPKR100	Yes	Yes	Yes	No	Yes	135	Penny
XTube	Yes	Yes	Yes	Yes	Yes	145	Both

2 **a)** The NoiseBoxA **b)** The NoiseBoxB, because it is over £200 **c)** Two, the Msx and the XTube **d)** The XTube as it is the cheapest that meets his criteria.

## End-of-unit assessment

1 B

2 D

3 A and C

4 B

5 D

## Unit 2

### Lesson 1

**1 sequence:** a series of step-by-step instructions; **selection:** steps are based on the decisions within the algorithm; **iteration:** repeating an action until a condition is met

2

- 1 Start.
- 2 Clean strawberries and remove any leaves.
- 3 Chop strawberries and put into blender.
- 4 Open milk carton.
- 5 Pour milk into blender.
- 6 Put lid on blender and switch on.
- 7 Turn off blender.
- 8 Take lid off blender.
- 9 Pour milkshake into glass.
- 10 Finish.

3 Debug means to check the algorithm for errors or problems and fix them where possible.

### Lesson 2

1 C and D

2

a)    Loop 3  
           Forward  
           Right  
           Loop 3  
               Forward  
           Loop 2  
               Left

b)    Left  
           Loop 3  
               Forward  
           Loop 2  
               Right  
           Forward

3 It can be removed because the robot ends up in exactly the same place at the end as at the start.

- 4    a) It only walks three steps forward and then turns right.
- b) Change the loop to four and indent the turn right.

### Lesson 3

1 a) Forward, Forward, Forward, Forward, Forward, Forward, Forward, Forward, Left, Forward, Forward, Forward, Forward, Forward, Forward, Forward, Forward

**b)** Loop 7  
         Forward  
     Left  
     Loop 7  
         Forward

**2 a) 37** (Forward x 2, Left, Forward x 7, Left, Forward x 2, Left, Forward x 3, Left, Forward x 5, Right, Forward x 3, Left, Forward x 2, Left, Forward x 6)

**b) 23** (Loop 2, Forward, Left, Loop 7, Forward, Left, Loop 2, Forward, Left, Loop 3, Forward, Left, Loop 5, Forward, Right, Loop 3, Forward, Left, Loop 2, Forward, Left, Loop 6, Forward)

### 3 Student's own answers

#### Lesson 4

- 1 D
- 2 B
- 3 C
- 4

1	the green flag starts the program
6	returns to the centre of the screen
3	creates a 1 second pause
2	repeats the blocks within it 10 times
5	used to change angles and add movement
4	move to any x and y co-ordinate on the screen

#### Lessons 5 and 6

- 1 **a)** dark blue **b)** purple **c)** pink **d)** yellow
- 2 **a)** C **b)** Sensing and Motion
- 3 D
- 4

Description	Letter
move to the position of the mouse every time the space bar is pressed	D
move to the bottom right of the screen and move left off the screen before repeating	C
jump to 5 different positions with a 2 second gap between each jump	A
follow the outline of a square	B

#### Lesson 7

- 1 Decomposition is breaking down a problem into smaller, more manageable tasks.
- 2 **a)** Code section: Looks; Block: say **b)** The 'think' block displays the text in thought bubbles.
- 3 B

**4 a)** The Costumes section allows you to change the look of a sprite at any point of the game. **b)** An example would be that the car becomes damaged after a collision with a wall or another car.

## Lesson 8

**1** A variable in a program is a place to store a value or data.

**2 a) C b)** Examples: game needs to be reset, it is the start of the new game, an action removed all the player points

**3** change points by -2

## Lessons 9 and 10

**1** When creating an original computer program, alpha testing is carried out by the programmers or their colleagues before any external users are able to try it. Beta testing is carried out away from the original people involved, either by potential users or professional testers.

**2**

Scenario	Alpha testing	Beta testing
co-programmers checking for errors	✓	
asking a group of gamers to play and look for errors		✓
hiring an expert to check your code		✓
double checking your own code	✓	

**3** Examples: scoring not increasing correctly, sprite not interacting with objects correctly, the game only runs once and stops, messages are not appearing on screen, control keys not working correctly

**4** A test plan is a list of expected and actual outputs and results and any action to be taken if a problem is found.

**5** Examples: the main objectives of the game, how to start the game, how to reset the game, the control method, how the game is scored, how to win the game

## End-of-unit assessment

**1** B

**2** C

**3** Examples: reduces the number of blocks, makes the program more efficient, removes the chances of mistakes

**4** D

**5** B

## Unit 3

### Lesson 1

**1 Example:** Now we can telephone using a mobile phone, so from any location to any location with a signal. In the past family members would have to telephone from a fixed phone in their home to another family member's home. We can also video chat now.

**2 Examples:**

#### Scenario 1

**Positives:** instant music, wide catalogue of choice, time and money saved in not having to travel to shops, environmental benefits in physical records or CDs not being created and thrown away

**Negatives:** artists don't get paid as much, people don't listen to full albums, sound quality on some devices is poor, music shops closing down due to lack of sales

#### Scenario 2

**Positives:** saves paper, cheaper to produce, cheaper to buy, device can hold thousands of books

**Negatives:** book shops lose business, people stop collecting physical books, some books not suitable as eBooks – such as those with lots of pictures

#### Scenario 3

**Positives:** instant research and opinions from all over the world, money saved by booking direct, wide range of choice

**Negatives:** travel agents closing down, online opinions can be false, missing out on travel agent expertise

### Lesson 2

**1 Examples:** students not doing any exercise, mood changes when away from devices, more time than normal in their bedrooms, not wanting to leave the house

**2 Examples:**

**Currently:** patient record databases, emails, video meetings, x-rays, medical testing, cleaning equipment

**30 years from now:** robot operators, virtual operations, instant testing devices, personalised medicines

**3 Examples:**

Scenario	In the past	Now
A student has been given a homework research project about the 1969 moon landing.	<ul style="list-style-type: none"> <li>• go to the library for research</li> <li>• ask people that remember</li> <li>• find a VHS or DVD on the subject</li> </ul>	<ul style="list-style-type: none"> <li>• watch the live recordings</li> <li>• listen to interviews with those involved</li> <li>• download images and facts</li> </ul>
Three school friends have made their own short film	<ul style="list-style-type: none"> <li>• use of tape-to-tape editing</li> </ul>	<ul style="list-style-type: none"> <li>• download free editing</li> </ul>

about a 1950s style monster from outer space and want to share it with friends.	<ul style="list-style-type: none"> <li>• copies made on VHS</li> <li>• show film at home or at friend's house</li> </ul>	software <ul style="list-style-type: none"> <li>• film uploaded to video sharing site</li> <li>• link shared to friends and family around the world</li> </ul>
An amateur athlete wants some new running shoes but is worried about how they fit and whether they will be available locally.	<ul style="list-style-type: none"> <li>• find a store that sells them</li> <li>• try on in store</li> <li>• travel back to store if need to return them</li> </ul>	<ul style="list-style-type: none"> <li>• read online reviews about fitting</li> <li>• order more than one size online</li> <li>• post back for free if need to return them</li> </ul>

## Lesson 3

**1** Examples: education, leisure, entertainment, government, services, shopping, manufacturing

**2** Examples: What are the impacts of using technology in the classroom? How has it affected how teachers work? How has it affected how students learn? Are there any negative impacts of technology in the classroom? What do students, teachers and parents think?

**3** Examples: books and other printed resources, interview – either live or recorded, internet research

**4** Examples:

**a)** Advantages: able to use images, can be shown on big screen, can be shared online; Disadvantages: computer required, can be distracting

**b)** Advantages: can be delivered anywhere; Disadvantages: can only be given to small audience

**c)** Advantages: can be very detailed, can be shared; Disadvantages: difficult to present to an audience

## Lessons 4 and 5

**1** Examples: **a)** Reliability means considering whether the research sources can be trusted.

**b)** Appropriateness means considering whether the research is suitable for the audience. **c)**

Bias means considering whether the research is balanced or whether it is only focusing on one side of an opinion.

**2** Examples: **a)** social network groups, forums, instant messaging groups, message boards, blogs **b)** can't guarantee the users are real, they might be pushing an agenda of their own

**3** Examples: remember the audience – use suitable language and images for their age and interests, keep presentations as short as possible, make sure content is in the correct order, consider whether any images used need explaining

## Lesson 6

**1** Examples:

Benefits: able to chat to friends around the world, chance to meet new friends, ability to talk to family in any location, ability to join groups with common interests

Potential dangers: increased risk of cyberbullying, lack of real interaction with people, reduced exercise, messages can be misunderstood

2 Examples: face-to-face interview, online survey, paper survey, email survey, telephone survey

3 A closed question is where there is a definite answer. Open questions do not have a definite answer, the person can explain what they think freely.

## Lesson 7

1 Physical social networking is meeting with people face-to-face and carrying out a physical exercise at a club or just for fun.

2 Examples: improved communication skills, an easy way to make new friends, learning new skills, improved fitness, improved coordination, improved reactions

3

Activity	How technology might help
A group of friends going for a walk through a local valley.	<ul style="list-style-type: none"> <li>• planning a route using a mapping website or smartphone app</li> <li>• using messaging to arrange the meet</li> <li>• researching the local area online first</li> </ul>
Travelling to a basketball competition.	<ul style="list-style-type: none"> <li>• booking travel on bus, train or taxi online</li> <li>• booking accommodation if needed</li> <li>• planning a route using a mapping website or smartphone app</li> </ul>

## Lesson 8

1 C

2 **block**: ensuring a person cannot send you messages; **report**: telling the social network about an abusive user; **friend request**: asking, or being asked, to make a direct online connection; **upload**: copying a file from your device to the internet

3 A social network moderator checks posts and comments to make sure they are appropriate. The moderator can be a person or specialised software.

4 Examples: do not give away personal information, do not use your full name, never give away information about your home, do not discuss your school, do not talk about places you play with friends

## Lessons 9 and 10

1 Examples: rude messages or emails, inappropriate behaviour in online games, posting rude comments on a profile, spreading untrue things about someone online

2 Make sure you research any messaging app before installing it, especially if it shares your location. Never post anything that might be hurtful to or untrue about another person, including any photographs without their permission. Always log out of social networks on shared computers and use extra passcodes when possible. Only accept friend requests that are from people you physically know and keep privacy settings to the highest level. Always

report anything inappropriate to the site (look for a report button) and also to a responsible adult.

**3** Examples to include in your code of conduct:

- Report anything inappropriate.
- Never post anything about another person without permission.
- Block anyone you do not know who tries to contact you.
- Never give out your personal details and location.
- Make sure you log out properly if using a public computer.
- Have a strong password or passcode.

## End-of-unit assessment

**1** B

**2** C

**3** A

**4** False, True, True, False

**5** B

## Unit 4

### Lesson 1

**1** Examples: nobody will know what to film or where to place a camera, props and costumes won't be available, actors will not know their lines, locations may not be available

**2 staging:** planning out everything that is going to be filmed; **shot:** a series of frames running in sequence; **frame:** a single still picture in a film

**3** Examples: What is the reason for the film? Where is the camera placed? What background will be on show? How will people be dressed? How are people/objects arranged in the shots? What might people say?

**4** Examples:

**a)** a classroom, the playground, a corridor, any locations where students line up when the fire alarm rings

**b)** the fire alarm, the fire exit map

**c)** students and teachers

**d)** the school and its students might think there is a real fire alarm

### Lesson 2

**1** Examples:

**a)** rain hitting windows, car windscreen wipers, engine noises, tyres splashing through puddles, people talking

**b)** shoes on beach and pebbles, dog barking, birds, waves splashing, friends talking

**c)** couple talking, sound of people eating, glasses and cutlery making noises, people working in restaurant, people singing happy birthday, party poppers

**2** Examples:

**a)** suspenseful music, high tempo, drums crashing, viewer worried about people in car

**b)** fun pop music, slow tempo, style is positive and calming

**c)** classical, not too powerful, theme matches style of restaurant

### Lesson 3

**1** Examples: title credits, subtitles, closing or end credits, text on screen highlighting locations or other information for the viewer

**2** A script contains dialogue for the actors and some stage directions. A screenplay is written to be recreated on film.

**3** Examples: actors' scripts, actors' directions, locations, type of camera angle, scene numbers

4 1 Camera looks at the two people outside a café. 2 Close-up of two people walking into a café. 3 Wide shot of two people sitting down. 4 Owner: “What can I get you?” 5 Camera Close up: Person 1. 6 Person 1: “Tea please”. 7 Camera Close up: Person 2. 8 Person 2: “Coffee please”.

## Lessons 4 and 5

1 Example:

Scene	Scene description
1	Title on screen with location of volcano
2	Camera footage of the surrounding location and volcano
3	The expert introduces himself and the situation
4	The expert goes into detail about what is happening
5	Closing footage, showing what might happen in the future
6	End credits, listing everyone involved

2

a) A storyboard breaks down a film into a series of scenes in logical order. It includes visual and technical information.

b) Examples: scene headings to describe the scene, notes on any physical action required, the background or location, the names of the characters, ideas for transitions – how one scene moves to the next with a simple cut, fade or wipe, the camera angle to give the audience the best information, any use of camera movement, the focus of the scene – such as a particular person or object, on or off screen text, sound or musical effects

3 Finger-framing helps you to see how a scene might look on screen. You use your fingers to represent the camera lens.

## Lessons 6 and 7

1 Examples: do not film anyone without permission, ensure devices are charged and free from damage, use the equipment carefully to avoid accidents, try to stay in one place when using equipment, be careful if moving is required, always be aware of trip hazards, keep equipment in one place to ensure parts are not lost

2 Increasing or decreasing the size of something, without moving the camera, is done using the zoom function. It is important to remember that using optical zoom will not affect the clarity of your video, but digital zoom may start affecting the clarity of the video as it stretches the image. The aspect ratio tool is also used to match the shape of the frame to suit the screen the final film will be viewed on.

**3 light balance:** how much light is captured when filming; **focus:** used to decide which object is clear in the frame; **tripod:** a fixed, stable device for mounting the camera; **camera angle:** aiming the camera up or down towards the subject

4 Examples: the actor’s audio is not clear enough, there might be unexpected background noise, an unexpected person, object or animal might appear in the frame

## Lessons 8 and 9

1 a) Cropping is when a portion of video is removed from the start or end of a clip. Transitions is when an effect is added between two clips joined or overlapped together.

**b)** Splicing is the joining of two or more video clips together. Splitting is separating a video clip into two or more shorter clips.

**2** Example: It is often difficult to agree on the final edit of a film because there is always more that can be done and it's not easy to stop making edits.

**3** Examples: **a)** a clear description, storyboard and script **b)** a variety of shots – close ups, wide, pan, zoom, dolly **c)** clear lines, use of music, suitable backgrounds, title screen and credits **d)** a variety of splits, crops, splicing, titles, effects

## Lesson 10

**1** Examples: their birthday, where someone lives, their school, members of their family, favourite holiday locations, dates when they will not be at home

**2** Examples:

Scenario 1: **a)** a boy is being bullied, the incident is filmed and put on social media, people make cruel comments **b)** The victim is the boy being bullied. The scenario doesn't say why he is being victimised. **c)** No, because the boy being bullied would not want the video to be posted online. **d)** No, it just allows more people to make cruel comments. **e)** They should report it to the social media site and ask for the video to be taken down. They should tell a trusted adult. **f)** They should report the inappropriate content to the website and tell a trusted adult.

Scenario 2: **a)** The student should not have worn his school uniform in the video, the other person should not have used the information to approach him outside school. **b)** The victim is the student sharing the video. He is being victimised because someone has taken personal details about him that he shared unintentionally. **c)** Yes, the student filmed the video of himself and uploaded it himself. **d)** No, the student should not have posted the video because it gives away personal details. **e)** They should take the video down. They should tell a trusted adult. **f)** They should report the inappropriate content to the website and/or tell a trusted adult.

## End-of-unit assessment

**1** D

**2** You should get permission from anyone that may be seen in the video that they are happy to be filmed.

**3** Cropping is removing portions of the frame and focusing on a particular area.

**4 a) B b) A**

**5 B**

## Unit 5

### Lesson 1

1 Examples: CPU type, amount of memory, size of hard drive, connectivity, screen size

2 Examples:

#### Scenario 1

Choice: laptop

Feature: small size

Advantage: can take from site to site

Disadvantage: battery can run out, may get dirty

#### Scenario 2

Choice: tablet

Feature: clear touch screen

Advantage: touch screen is easy to type

Disadvantage: it doesn't have all the features of a computer

#### Scenario 3

Choice: smartphone

Feature: camera and video

Advantage: small, able to shoot and edit video

Disadvantage: can be lost, limited battery life

### Lesson 2

1

a) Eyes: prolonged staring at screens can cause eye strain

b) Back: back pain can be caused by poor seat position and lack of movement

c) Neck: using devices not set at the correct angle can cause muscle strain

d) Wrists: using a keyboard or mouse for a long time or having the desk at the wrong height can lead to repetitive strain injury (RSI).

2 Sitting and using a keyboard or mouse for a long period of time, or having the desk at the wrong height, can lead to repetitive strain injury (RSI). This causes pain in the wrists and hands. It is important to exercise them and come away from the desk at regular intervals.

3 a) sleep disturbed, neck and shoulder ache b) back and neck ache c) eye strain, RSI in wrists

### Lessons 3 and 4

1 Examples:

**a)** ensure a comfortable seating position, monitor at eye level, back supported, keyboard and mouse at a comfortable distance, take breaks from the screen

**b)** avoid holding it up for too long, take breaks from the screen, don't use whilst walking, keep away from food and drinks that could be spilled over it

**c)** avoid trailing cables, always be seated with your back supported, take breaks from the screen, ensure good ventilation, don't use whilst walking, keep away from food and drinks that could be spilled over it

**2 close-up, wide, pan:** types of camera shot; **splicing video:** combining two or more clips into one clip; **fade and wipe:** types of transition; **storyboard:** plan of shots, movement and backgrounds

**3** Examples: avoid trailing cables, make sure camera operators are comfortable, make sure tripods are secure, check weather forecasts if outside, make sure all equipment is working and charged

## Lesson 5

**1** Recycling will try and use the device materials again to create another product. Refurbishing is the repair and cleaning of a device to be used by another owner.

**2** Examples: ruthenium in hard drives, gold in contacts and connectors, lead in soldered joints on circuit boards, copper in circuit boards and connecting cables, plastic in covering wires, knobs, buttons and casings, iron/steel in casings, screws and hard disks

**3** The term 'e-waste' means electronic waste. This refers to a device that no longer works and cannot be refurbished.

**4** Examples: people like the latest devices, software upgrades may stop them working, devices may be damaged and unrepairable, devices get worn out and can slow down

## Lesson 6

**1** 1 locate and mine materials 2 processing and manufacturing 3 packaging and selling 4 smartphone in use 5 thrown away or recycled

**2** Examples: exposure to toxic materials in landfill, damage to the environment they live in, dangerous conditions in the landfill

**3** It is still a concern because they might be contaminating landfill sites or still being used after being sold or refurbished.

**4** A and C

## Lesson 7

**1** Examples: reducing the need to mine more raw materials, reduction in toxic materials in landfill, reduction in energy use

**2** Examples for all: reducing the number of devices and media in landfill, making devices last for longer, reducing the need for purchasing new devices and media

**3** Examples: explain the benefits of using devices for as long as possible, not throwing working devices away, recycling or donating unwanted working devices, buying refurbished

devices, making sure to recycle any broken devices properly. You could make a film, leaflet or poster to share with others.

### Lessons 8, 9 and 10

**1** The text-wrap tool allows you to adjust the positioning of text around an image, to either block next to it or wrap around it.

**2 a)** Examples: rubbish, waste, dangerous, toxic, environment, poison, preventable, expensive, unnecessary, minerals

**b)–e)** Student's own answers

**3** Example:

Every year thousands of people find they have no use for an electronic device. Rather than recycle or refurbish the device, they throw it away and it ends up in landfill. This is dangerous and the damage it is causing our planet is difficult to repair. We need to reduce e-waste and we can all help by recycling and reusing.

### End-of-unit assessment

**1** B

**2** C

**3** C

**4** C

**5** Examples: give them to someone else, recycle them, donate to charity, sell them

## Unit 6

### Lesson 1

**1** Repurposing an algorithm means changing part of it to suit new conditions. We look for and change only the required command, the rest remains the same.

**2**

**a)**

```
1   IF the whistle blows 2 times THEN
6   shout "Let's go!"
```

**b)**

```
3   IF the trumpet blows 2 times THEN
5   IF the drum bangs 5 times THEN
```

**c)**

```
2   Clap 3 times
4   Do 3 push-ups
```

**3** A variable is a named place to store data.

**4 a)** Porridge, light brown **b)** Yorkshire, great, 20

### Lesson 2

**1** reduction in the number of lines, reduction in the number of possible mistakes

**2**

```
REPEAT 4 times
    Dip brush in paint
    Remove excess paint
    Paint panel
```

**3** An action is repeated until a certain condition is met.

**4**

```
REPEAT UNTIL all fence panels have been painted
    Dip brush in paint
    Remove excess paint
    Paint panel
```

### Lesson 3

**1 a)** Control **b)** Motion **c)** Control **d)** Operators **e)** Variables **f)** Motion

2 INPUT distance, set distance to INPUT, DISPLAY time

3 a) 5 hours b) 4 hours c) 10 hours

4 It is used to collect user input and assign the value to a variable.

#### Lesson 4

1 a) To make sure values to previous program runs are not included in any calculations.

b) Examples: i) swimmers or people ii) lessons iii) average or average\_attendance

c) set event\_cost to 2

d) Example: set average to people / lessons

#### Lessons 5 and 6

1 Decomposing is the breaking down of a problem into smaller subproblems that can be tackled more easily.

2 a) The 'wait' block prevents the timer instantly reaching zero without any break between each countdown value.

b) REPEAT UNTIL timer = 10; Change timer by 1

3 the 'say' block

4 B

#### Lesson 7

1

Square: 4, 90

Triangle: 3, 120

Rectangle: 4, 90

Hexagon: 6, 60

2 When creating any shape in Scratch using the pen extension, remember the repeated turns of a shape should have a total of 360 degrees. To calculate the angle required for a shape, divide 360 by the number of sides the shape has. For example, a hexagon has six sides and 360 divided by six creates an angle of 60 degrees.

3 The 'glide' block includes a time variable so you can visually see the movement. The 'go to' block is instantaneous.

4

x = 240, y = 180: top right

x = -240, y = -180: bottom left

x = -240, y = 180: top left

x = 240, y = -180: bottom right

## Lesson 8

**1 a)** All four triangles are drawn in the same place. **b)** An angle change or movement needs to be added after each shape.

**2** the 'erase all' block

**3** The eye dropper tool allows you to select an existing colour from any object or background on the Scratch stage.

**4 a)** 45 **b)** 60 **c)** 30

## Lesson 9

**1**

$x = 240, y = 0$

$x = 0, y = -180$

$x = -240, y = 0$

**2**

**1** Error in Line 3: repeat set to 5; Solution: set repeat to 6

**2** Error in Line 6: repeat set to 3; Solution: set repeat to 4

**3** Error in Line 8: angle set to 95 degrees; Solution: set angle to 90 degrees

**3** the centre of the stage,  $x = 0, y = 0$

## Lesson 10

**1** Examples:

**a)** 4 rectangles, internal 90 degree turns, 800x100, rotated at 45 and 90 degrees

**b)** Size: 300x250. Remove the 60 degree as incorrect (not equilateral)

## End-of-unit assessment

**1** A variable is a place to store information or a value.

**2** C

**3** C

**4** A

**5**

When flag clicked

pen down

move 75 steps

turn 120 degrees

move 75 steps

turn 120 degrees

move 75 steps

pen up