Inspire Computing Year 5 Workbook Answers

Unit 1

Lesson 1

1 Green screen is filming in front of a green screen, then replacing the green screen with another background of your own choice by using computer software.

2 stop motion: a series of still images shown in sequence; **claymation**: stop motion animation using characters made from clay; **props**: objects used in an animation; **onion skinning**: using transparency to follow the steps in an animation

3 Examples: make sure the camera is fixed for the whole of the animation, make sure hands and fingers are out of the frame when taking shots, only make the smallest of movements in each frame, think about the lighting and make sure levels remain the same and avoid large shades or sunlight that might change during the day, when animating against a green screen make sure other objects do not use the same colour as the background, use props that are not going to move between frames, always plan ahead with your partner and make sure to co-operate in all elements

Lesson 2

1 Examples: talking animals, scenes set on other planets or under the sea, amazing fantasy characters from myth and legend

2 Examples: Nick Park – comedy characters such as Wallace and Gromit, Ray Harryhausen – mixed people with models, created fantasy creatures, Henry Selick – family animated films with amazing characters, such as James and the Giant Peach, Jiří Barta – often uses wood in films, such as the Pied Piper, Andrea Love – specialises in animating with wool

3 Examples: Slide show: include key points, avoid long sentences, include interesting images; Leaflet or report: divide writing with subheadings, do not copy and paste, mix text and images; Poster: communicate visually, divide information into sections, use clear text

Lessons 3 and 4

1 Examples: props, text, devices needed, sound effects, backgrounds

2 A storyboard is a visual way of planning your animation by breaking down the whole story, scene by scene.

3 Examples: character positions and movement, on-screen props, background descriptions, sound descriptions, on-screen text

4 a) A wireframe image is a simple line drawing of an image, character or object. **b)** The advantage is that they can be quickly redrawn.

Lesson 5

1 Examples: match the scene being filmed, have a clear focus, be an appropriate size and scale for your models

2 B and D as they provide a city background at the right camera level

Lessons 6 and 7

1 Examples: **a)** old toys, cars, pieces of metal, cans and bottles **b)** stationery, classroom toys, books

2 Examples: Does it fit into the storyline? Is it the right size and in proportion with other characters and props? Does it have moving parts?

3 It is important that the green background fills the entire frame because otherwise, when the green background is removed on the computer, some of the frame may still show the original background.

4 a) A tripod is a stand that keeps your camera in a fixed position. **b)** It prevents movement between shots.

5 Examples: keep your things organised, keep your fingers out of the photos, keep the camera fixed in position, use good lighting, make small movements, take lots of photos, use the onion skinning tool

Lessons 8 and 9

1 crop: cutting out a section you want to keep; **resize**: changing the size of an image; **cut**: removing an image, keeping it in memory and placing it in a new position; **copy**: creating an identical version of an image; **paste**: placing an image that has been either cut or copied

2 Examples: create the sound yourself and record it onto the computer, download an existing sound from a website

3 1 Record or import the sound to the device. 2 Open the animation in the application. 3 Look for the insert audio tool and add the sound. 4 Position the sound in the timeline where you want it to play. 5 Check the timings work and adjust as required.

4 You should check the copyright permissions of any music you download to add to an animation because you don't want to break any copyright laws, especially if an animation is uploaded to a streaming site.

Lesson 10

1 Examples: the name of the event, a brief description of the event, the date and time, the place, the name of your animation, images from the animation, any information about your animation such as character names

2 a) the theme of the invitation doesn't match the title of the animation, there is no time on the invitation **b)** the title of the animation is missing, the date of the screening is missing

End-of-unit assessment

1 Examples: keep the camera fixed in position, keep hands out of the frame, make only small movements, think about the lighting, avoid green objects when using green screen, keep props fixed, always plan ahead

2 wireframe / wireframing

3 C

4 B

5 Cropping is to choose a section of the frame to keep and remove the rest. Resizing is to change the size of the whole frame.

Unit 2

Lesson 1

1 **'IF… THEN…' block**: starts an action if a condition is met; **'IF… THEN… ELSE…' block**: switches between actions, depending on the condition; **'when space key pressed' block**: starts an action if a certain key is pressed; **'REPEAT UNTIL…' block**: repeats a condition until a condition is met

2 Student's own answers

3 a) 11 **b)** 22 **c)** 29 **d)** 60

Lesson 2

1 D

2 False, False, True, True

3 the space bar

4 C

Lesson 3

1 A variable is used to store information in a program.

2

Description	Letter
operator used to compare variable to stored answer	D
action in response to condition being met	B
variable created in response to question	A
action in response to condition not being met	C

Lesson 4

1 A nested loop is a loop inside another loop.

2 B

3 The player, or user, can have a second attempt if they get the answer wrong.

4 Block 1 will stay on screen for 2 seconds but if using Block 2, the message on screen will appear then instantly disappear.

Lesson 5

1 Examples: allows you to focus on each task, makes it easier to design a solution, the project is much more manageable

2 Examples: design the stage or play screen, design the main sprite, keyboard controls for the sprite, game rules, how to start the game, how the game ends

3 1 Planning 2 Designing 3 Programming 4 Testing 5 Writing player instructions

4 A

Lessons 6 and 7

1 design your own background in Scratch, select one from the built-in library, upload your own original design

2 False, True, False

3 C

4 3, 4, 5, 6, 7

5 Any five from: +, -, /, * , <, >, =, random

Lessons 8 and 9

1 Looks: The sprite can either think or say something using a speech bubble; Sound: the sprite could make a noise using built in sounds, or by recording an original one

2 It can be more efficient because multiple questions can be made from the same set of blocks, without repeating lots of blocks.

3

Loop number	random1	random2	User input	Stage message
1	8	2	11	Incorrect! Better luck next time.
2	1	6	7	Correct! Well Done!
3	2	2	4	Correct! Well Done!
4	9	9	17	Incorrect! Better luck next time.

4 Examples: additional welcome messages from the sprite, additional sound effects, changes in background or sprite

Lesson 10

1 C

2 the sprite gives instructions using speech bubbles, instructions appear as a backdrop, add them to your uploaded games on the Scratch website

3

Advice	Good idea	Bad idea
Add your full name and home location.		✓
Describe how to play the game.	✓	
Include a suitable age rating.	✓	

Add an email address or contact number.		✓
Avoid spelling and grammar mistakes.	✓	

End-of-unit assessment

1 A conditional statement will carry out an action based on the outcome of condition. This could be a keyboard input or value of a variable.

2 sequencing: making sure that the order of steps is correct; **iteration**: repeating a process; **variable**: used to store text or numbers; **input:** information that you put into a device

3 Debugging is the finding and removing of any errors, or bugs, in a program or algorithm.

4 A

5 conditions that switch an action: 'IF… THEN… ELSE' block; **conditions that stop a repeated action**: 'REPEAT UNTIL…' block; **conditions that start an action**: 'IF… THEN…' block

Unit 3

Lesson 1

1 C

2 Infrastructure means the physical things that you can see in a network that allow it to work properly.

3 Examples: Airport network: planes, runways, terminals; Road network: cars, bikes, trucks, motorways, service stations; Cycle network: cycle lanes, cycles, cycle parks, parking

4 Examples: electricity, gas, water, internet, postal/mail service

Lesson 2

1 Examples: introduced in the United Kingdom, introduced in 1840, cost one penny, standardised cost of posting letters, used as proof of payment to Post Office staff

2

1840	stamped letters
1844	Morse code
1876	telephone call
1901	radio messages
1971	email
1992	text messages (SMS)

3 D

Lesson 3

1 True, False, True, False

2

a) Encoded in Morse:

•–– •••• • •–• •

•• •••

– •••• •

––• ––– •–•• –••

•••• •• –•• –•• • –•

b) top secret message

c) Student's own answer

3 Student's own answer

4 Examples: messages can be intercepted, telegraph signals get weaker over distance, both sender and reader need to know Morse code

Lesson 4

1 Examples: physical network, communication network, computer network, school network, personal network, transport network

2 laptop: mobile computer; **mobile**: makes calls, sends and receives messages/emails, browses the web; **switch**: connects computers to other devices in the network; **file server**: stores programs and files with access for multiple users; **wireless hub**: connects wireless devices to the network; **router**: connects the network to the internet; **printer**: makes paper copies of files; **scanner**: scans in physical images and documents

3 Each ethernet cable contains <u>eight</u> wires, twisted into four pairs. This is to prevent <u>interference</u> and allow the signal to be <u>transmitted</u> clearly. Devices send and receive <u>data</u> as pulses of <u>electricity</u> through the cables.

4 B

5 Examples: more reliable, faster data transmission, able to transfer larger files

Lesson 5

1 a) components, share **b)** ethernet, wireless **c)** protocols, receive

2 1 They type in their username and password. 2 Information is sent wirelessly to the hub. 3 The hub connects to the server. 4 If the login details are correct, the server accepts the connection. 5 They can access their files and documents.

Lesson 6

1 C

2 True, False, True, False, False, True

3 When devices <u>communicate</u>, they must follow <u>rules</u> called protocols. The protocols are <u>instructions</u> for how to process <u>data</u> so the correct information goes to the correct <u>device</u>.

Lesson 7

1 The internet is the network of devices and servers that allows devices to communicate. The World Wide Web (WWW) is a part of the services available using the internet.

2 D

3 A

4 False, True

Lesson 8

1

Across: 1 voip 3 file sharing 4 instant messaging 5 remote access 6 web browser 8 streaming

Down: 1 video conferencing 2 online gaming 7 email

Lesson 9

1 A search engine uses key words to scan lots of web pages to seek out the information you need.

2 spiders: programs designed to follow all web page links and build a catalogue of URLs and keywords; **index**: a catalogue of web page addresses and the key words they contain; **URL**: the address of any web page

3 C

4 Examples: quality of results, the interface, the amount of adverts, privacy settings, safe search options

Lesson 10

1 B

2 Examples: **a)** Wales highest mountain metres **b)** number smartphones 2023 (using current year) **c)** Paris Mumbai drive kilometres

3 It focuses on searching for an exact phrase, rather than each keyword individually.

4 Examples: how many times the key words are on the page, how often users click on that link, when the web page was last updated, what links the web page has on it

End-of-unit assessment

1 A group of connected devices that are able to communicate and share information.

2 Devices can communicate when they use the same <u>protocol</u>. This means they are following the same <u>rules</u>.

3 B

4 A

5 False, True, True, True, True

Unit 4

Lesson 1

1 Cybercrime is crime that is carried out using a computer and a network.

2 cybersecurity: taking action to prevent cybercrime; **cyberattack**: an attempt to steal your personal information; **phishing**: sending messages that look like they are from a trustworthy company; **pharming**: using links to send internet users to a fake website that looks real

3 Examples: items bought online never arrive, holiday bookings are sold that don't exist, investment scams offer high interest rates and steal money, online prize draws for non-existent prizes

4 Examples: usernames, passwords, email addresses, home details, family details, bank details

Lesson 2

1 The scammer sends a message to the victim, pretending to be from a real business. The victim thinks the message is real and follows the instructions.

2 Phishing scams are sent to so many people at once because even if most people realise it is a scam, someone may unfortunately believe it is real.

3 In a phishing attack a message is sent to the victim, but in a pharming attack the victim usually follows a link from a website that is not trustworthy.

4 Examples: check who the message is from, never click on a message link and fill in personal information, always check the business it claims to be from directly, not via the message, do not open messages from people you do not know, do not download attachments from people you do not know

Lesson 3

1 A: Web address is suspicious; B: Poor spelling and grammar in banner; C: Prices seem too good to be true; D: Lots of random adverts; E: 'We accept any currency, even gold!' is suspicious.

2 B

3 a) Some web browsers have built in tools that will alert you if you access a fake website. **b)** Some search engines have a safe browsing tool that will allow you to paste in a suspicious web page address and it will check it again known scam sites.

Lesson 4

1 A

2 Antivirus or antimalware software detects and removes any harmful programs that you have accidentally downloaded.

3 Examples: bank accounts, passports, shopping accounts, house buying (mortgages, etc.)

4 It is important to keep antivirus and antimalware software up to date because new viruses and scam software are released every day and it is important your protection knows about them.

Lesson 5

1 Examples: criminals can guess your password and access your accounts, criminals can use your accounts to steal or commit more crimes

2 Using the same password for all of your accounts is a bad idea because if a criminal guesses or hacks this password, they can get access to lots of your accounts, not just one.

3 Examples: **a)** iRdLp55wP! **b)** MbIRaRf!99 **c)** 3SmPWiAGin0w!

4 D

Lesson 6

1 It means it scans and checks a unique part of your body to check it is you.

2 Examples: facial recognition, fingerprint scanners, palm print scanners, eye (retinal) scanners

3 a) Fingerprint and facial recognition **b)** Examples: Advantages: quicker and easier to unlock, no need to remember multiple passwords, more secure; Disadvantages: it requires more expensive technology, with fingerprint recognition someone could access your device with your finger while you were asleep

Lessons 7, 8, 9 and 10

1 Examples: written text, tables, images or photographs, graphics or figures, charts or graphs

2 a) The target audience is the age, gender and interests of the people that will be reading or viewing the document. **b)** make sure written text and language used is suitable for the age group, make sure any images are suitable for the audience

3 C

4 a) Make sure to save your work regularly. **b)** Always use a sensible filename when saving work. **c)** If you can't find your file, use the file explorer to look or search or it. **d)** Always consider copyright when downloading text and images to use in your work.

5 1 Decide on the video's key message 2 Write a short brief, describing the film 3 Create a storyboard of all the scenes in order 4 Practise acting out the scenes 5 Film the scenes 6 Edit the scenes 7 Add any music and sound effects 8 Present your video and collect feedback

End-of-unit assessment

1 shopping scam, pharming, phishing, investment scam

2 True

3 D

4 C

5 B

Unit 5

Lesson 1

1 C

2 loop forever: an action continues until you stop the program; **loop until**: an action continues until a condition is met

3 LOOP FOREVER: Once started, this algorithm will run forever; **LOOP UNTIL**: The algorithm will repeat until the action is met; **LOOP 5 TIMES**: The algorithm will check 5 times before finishing.

Lesson 2

1 a) User testing is the process of asking someone else to check your work. **b)** When a line in an algorithm is indented, this means it is directly linked to the line above it. If it isn't directly related, the line moves back to the left.

2 B

3

LOOP UNTIL the referee calls out 'end game'

      LOOP 10 TIMES

      perform algorithm (pick random number 5–100)

      player shouts out random number

Stop all

4 A

Lesson 3

1 a) C **b)** interaction or interacting **c)** False

2 They should be placed inside a 'forever' block because otherwise each control would only work once in the game.

3 True

4 Error 1: Right arrow movement is set to -10, it should be 10. Error 2: The IF touching block is set to 'edge', not 'Player2'. Error 3: The message 'Found you!' is set to 222 seconds instead of 2.

Lesson 4

1 C

2 Examples: clear instructions on how to play and replay, interesting characters and story, free from errors, sensible rules, an obvious end to the game, fun!

3 Examples: have asteroids move randomly, have a timer – the game must be completed before it runs out, adding a life count – the number of times the ship can hit an obstacle, add fuel pods to pick up for points along the way

Lessons 5 and 6

1 choose one of the in-built ones, draw your own in Scratch, upload a computer file of your own

2 The Costumes tab allows different versions of the same sprite to be created and they can be swapped at any point during a game.

3 A

4 Testing is making sure the program meets the original brief and everything works as designed. Debugging is checking for program errors, mistakes and mistakenly placed blocks.

Lessons 7 and 8

1

Brief	IF… THEN… keyboard controls	Painting a backdrop with an edge	REPEAT and variable for timer	IF… THEN… touching	Sprite costumes	Go to x y block	Use of multiple sprites
Driving a car around a racetrack before the timer ends. The car breaks if it hits a barrier.	✓	✓	✓	✓	✓	✓	
Piloting a submarine under the sea, collecting jewels for points.	✓			✓		✓	✓
Piloting a rocket ship on a base, avoiding other ships before it runs out of fuel.	✓		✓	✓		✓	
Driving a boat along a canal, picking up passengers for points.	✓	✓		✓		✓	✓

2 a) 50% **b)** 200% **c)** 25%

3 The eyedropper tool allows you to pick any existing colour on the game stage.

4 D

Lesson 9

1 C

2 Select the sprite and then the costumes menu. Duplicate the existing costume and create a slightly different version. The costume can then be changed if it hits the barrier.

3 Examples: the sprite says a message using a speech bubble, the sprite speaks out loud using recorded voice, the backdrop changes to include a message, the game resets to starting position

4 Student's own answer

Lesson 10

1 The countdown is set to finish at two, rather than zero. The change line uses 'my variable' instead of countdown.

2 The 'stop all' block completely stops a program running and requires the user to restart it. It could be used at the end of a game or at a point where all lives or attempts have been lost.

3 User testing isn't about completing the game or getting the highest score. It is about making sure all of the planned game works properly, including keyboard controls, scoring, timers and the use of variables.

End-of-unit assessment

1 C

2 touching

3 C

4 B

5 triangle

Unit 6

Lesson 1

1 a) a tree **b)** C7, E6 **c)** right aligned **d)** row 3 **e)** column F **f)** C2 **g)** a car **h)** E6 **i)** more rows **j)** column B or F

2 Examples: cell colour, text format, text font, text style, cell border

3 D

Lesson 2

1 False, True, True

2 Examples: completing days of the week, completing date lists, completing a number list, repeating or copying content

3 B

4 Examples: cell alignment needs to be consistent – all in centre for example, cells containing colours could be coloured in, two values should be formatted to percentages, borders need adding to all cells, both table headers could be made bold, blue and green could be capitalised

Lesson 3

1 a) survey **b)** data

2 a) B **b)** C

3 False

Lesson 4

1 a) To create a chart, first select a range of cells and look on the toolbar for the button called create chart or chart wizard. **b)** To create a chart with two ranges of cells that are not next to each other, hold down the CTRL / control key.

2 False, True, False

3 a) bar chart, pie chart **b)** A: chart title B: axis title

Lessons 5, 6 and 7

1 Examples: use a sensible file name, save it regularly, save it in a known file location

2 a) =H2+H7 **b)** =H3/H4 **c)** =H6-H5 **d)** =H2*H3

3 a) E3: =AVERAGE(B3:D3); E4: =AVERAGE(B4:D4); E5: =AVERAGE(B5:D5)

b) D **c)** =(B3+C3+D3)/3

4 Examples: clear report title, description of the purpose of the experiment, description of how experiment is carried out, tables of results, charts and graphs of results, conclusions from the results

Lessons 8, 9 and 10

1 Examples: prevents things being forgotten, multiple prices can be compared, averages and totals can be calculated, a total for the party can be calculated, ticket prices can be checked and adjusted to pay for the party, food and drink quantities can be planned

2 If the values change in the table, the formula with cell references will still work. The second one is fixed to those values.

3 a) G2: =E2*F2; G3: =E3*F3 **b)** Either =AVERAGE(B2:D2) or =(B2+C2+D2)/3

c) =SUM(G2:G6)

4 decimal place/point tool

5 Examples: raise the ticket price, increase the number of ticket sales, choose the lower price food and drink from the suppliers, look at alternates to room and equipment hires

End-of-unit assessment

1 spreadsheet application: adding data using numbers, managing data; **word processing application**: writing longer pieces of text, creating text boxes; **presentation application**: creating slides with pictures and text; **desktop publishing application**: making posters or documents with lots of images

2 B

3 C

4 Use = [row total] divided by [total number of students]

5 C