**Year 7**

|  | **Topic 1: Image Manipulation** | **Topic 2: Spreadsheet Modelling** | **Topic 3: HTML** | **Topic 4: DTP** |
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| **Knowledge** | How to use and apply a range of tools in Inkscape.  The role of annotation in a design.  Consider the factors needed to create a successful festival.  Explain the concept of SOAP. | Understand what a spreadsheet does and have knowledge of its parts and tools.  Explain what a financial model is.  Discuss the concept of business costs and why they need to be monitored.  Understand the consequences of changing data within a cell.  Understand how formulae work in relation to individual cells.  How a spreadsheet model works.  Explain what the formulas used do.  Understand the difference between formulae and functions and where to use each.  Explain about the concept of profit / loss.  Explain why the overall profit / loss needs to be £0 in order to break-even. | Describe why hex colour codes are used.  Explain why a picture size would need to be adjusted.  How a page is constructed in HTML.  How you access a webpage.  Explain the different tags used for text.  Explain which tags are used for paragraphs and line breaks.  Explain the different tags used for adding colour.  Explain the role of Hex colour codes.  Explain the different tags used to insert an image.  Explain how the size of an image is measured. | The purpose of a range of appropriate DTP documents.  The role of white space and Loren Ipsum when designing and planning DTP documents.  How to use and apply a range of tools in appropriate DTP software. |
| **Skills** | Manipulate basic shapes to create an image for a given purpose.  Use appropriate colours and filters to enhance image.  Apply a variety of colour gradients to an image.  Export an image to an appropriate format.  Evaluate a completed image, explaining the choice of tools to meet the design decisions.  Be able to select and apply text so that it meets the needs of SOAP | Use the common mathematical operators to construct a formula.  Use relative cell references within a formula.  Able to use the function Goal Seek.  Format individual cells to a specific data type.  Create a graph and add titles and labels.  Produce a working spreadsheet model  Design and create a spreadsheet solution and use it to model different situations.  Able to make some appropriate recommendations about their ticket price. | Apply the tags <html>, <head>, <title> and <body> in the right order and similarly with the corresponding closing tags.  Apply a range of formatting tags (such as <b>, <h1>, <u>, <p>, <hr>) Describe the role of each tag.  Apply colour to some text using hex colour codes.  Insert an image into a webpage with little or no guidance.  Adjust the size of the image by changing the height and the width of the picture. | Can create appropriate documents related to the scenario.  Can use a range of shapes and colour to enhance my documents.  Apply Loren Ipsum when designing DTP documents.  Use a range of features and tools in to DTP software. |
| **Vocabulary** | Node  Palette  Swatch  Gradient  SOAP  Vector  Bitmap  Pixel  Bézier  Annotation | Income  Costs  Profit  Revenue  Data Type  Validation  Function  Formula  Expenditure  Ascending | HTML  URL  Tag  Angle Brackets  Browser  Hexadecimal  Header  Hyperlink  Format  Font | DTP  Publishing  Flyer  White Space  Loren Ipsum  Copyright  Indent  Tab  Alignment  Justification |
| **Does the knowledge above marry up with KO? If not, what needs to be amended?** | Yes.  There is Golden Terminology to support understanding the knowledge plus additional explanation. | Yes.  There is Golden Terminology to support understanding the knowledge plus additional explanation. | Yes.  There is Golden Terminology to support understanding the knowledge plus additional explanation. | Yes.  There is Golden Terminology to support understanding the knowledge plus additional explanation. |
| **How does this knowledge link to/build on prior knowledge?** | Depends on KS2 knowledge. Utilising the KS2 National Curriculum documentation, this should build on prior knowledge but is dependent on the Primary School. | Depends on KS2 knowledge. Utilising the KS2 National Curriculum documentation, this should build on prior knowledge but is dependent on the Primary School. | Depends on KS2 knowledge. Utilising the KS2 National Curriculum documentation, this should build on prior knowledge but is dependent on the Primary School. | Depends on KS2 knowledge. Utilising the KS2 National Curriculum documentation, this should build on prior knowledge but is dependent on the Primary School. |
| **Is knowledge embedded consistently across the SOW?** | Yes, see learner booklet and SOW/ Lesson PPT. | Yes, see learner booklet and SOW/ Lesson PPT. | Yes, see learner booklet and SOW/ Lesson PPT. | Yes, see learner booklet and SOW/ Lesson PPT. |
| **Is all of the vocabulary embedded throughout the SOW?** | Yes, in the learner booklet (Golden Terminology) and where appropriate in the lesson ppts inc etymology. | Yes, in the learner booklet (Golden Terminology) and where appropriate in the lesson ppts inc etymology. | Yes, in the learner booklet (Golden Terminology) and where appropriate in the lesson ppts inc etymology. | Yes, in the learner booklet (Golden Terminology) and where appropriate in the lesson ppts inc etymology. |
| **What (if any) additional vocabulary is needed to access this SOW?** | Some Tier 2 vocabulary as well as basic Tier 3 vocabulary such as Copy & Paste.  Some mathematical terminology such as the accurate names of a range of polygons and angles. | Some Tier 2 vocabulary as well as basic Tier 3 vocabulary such as Copy & Paste.  Some mathematical terminology such as the accurate names of different charts and the terminology related to charts e.g. axis. | Some Tier 2 vocabulary as well as basic Tier 3 vocabulary such as Copy & Paste. | Some Tier 2 vocabulary as well as basic Tier 3 vocabulary such as Copy & Paste. |
| **What grammatical knowledge is required to access this SOW? Is this embedded across the SOW?** | Appropriate grammar to support the annotation and evaluation. Support is available within the lesson ppt. | Appropriate grammar to support the annotation and evaluation. Support is available within the lesson ppt. | Appropriate grammar to support the annotation and evaluation. Support is available within the lesson ppt. | Appropriate grammar to support the annotation and evaluation. Support is available within the lesson ppt. |
| **Does remembering the knowledge help students to develop the skill? If not, what is missing?** | Initial familiarity and confidence with the software allows skills to develop. | Initial familiarity and confidence with the software allows skills to develop. | Initial familiarity and confidence with the software allows skills to develop. | Initial familiarity and confidence with the software allows skills to develop. |

**Year 8**

|  | **Topic 1: Big Data** | **Topic 2: Animation** | **Topic 3: Databases** | **Topic 4: Ethics** |
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| **Knowledge** | Define the term “Data”.  Define the term “Information”.  Define the term “Big Data”.  How Data can be turned into Information.  How Big Data is used in society using relevant examples.  The different types of questions that can be used in a questionnaire.  Describe the use of questionnaires, email, sensors, interviews, consumer panels, & loyalty schemes to collect data including the advantages & disadvantages of each one.  Describe the use of barcode readers, QR codes, wearable technology.  Explain how the data can be stored using the cloud or with physical devices. | How an animation is made of keyframes.  How frames are combined using a process called tweening.  The advantages of using computerised animation.  The disadvantage of using computerised animation.  How to use and apply a range of tools in Blender. | Describe the components of a database, e.g. records and fields.  The definition of a database.  The advantages and disadvantages of using a database.  The role of a primary key.  The difference between a flat-file database and a relational database.  Explain how queries are used to search databases.  Explain the advantages of reports in displaying information | What GDPR is and how it protects our data.  What the Computer Misuse Act covers.  What a digital footprint is and the privacy of our information.  How technology can affect our wellbeing.  How technology can impact our culture.  How technology can change the way we work. |
| **Skills** | Create a suitable questionnaire using a range of question types.  Analyse the results of a questionnaire describing any potential issues. | Insert basic shapes and move then on the x, y and z axis.  Apply colour and textures to shapes.  Manipulate basic shapes to create an animation for a given purpose.  Insert appropriate frames and edit the tween. | Set up a database on my own.  Select appropriate options or can manually create objects such as tables, queries and reports.  Use keywords effectively to search the database including multiple criteria queries.  Allocate a field to be the primary key.  Allocate appropriate datatypes to the fields. | Create a simple site using the tools available.  Insert text, videos and images with a clear layout to meet the criteria.  Create links to pages so that the viewer can easily navigate the site. |
| **Vocabulary** | Data  Information  Data Type  Internet of Things  Questionnaire  Primary Research  Secondary Research  Quantitative  Qualitative  Statistics | Concave Face  Convex Face  Edge  Face  Gimbal  Pivot Point  Render  Vertices  Keyframe  Smoothing | Database  Flat-File Database  Relational Database  Query  Record  Field  Data Type  Primary Key  Entity  Wildcard | Bias  Prejudice  Hacking  Malware  Virus  Identity Fraud  Phishing  Spyware  Digital Divide  Ergonomics |
| **Does the knowledge above marry up with KO? If not, what needs to be amended?** | Yes.  There is Golden Terminology to support understanding the knowledge plus additional explanation. | Yes.  There is Golden Terminology to support understanding the knowledge plus additional explanation. | Yes.  There is Golden Terminology to support understanding the knowledge plus additional explanation. | Yes.  There is Golden Terminology to support understanding the knowledge plus additional explanation. |
| **How does this knowledge link to/build on prior knowledge?** | Learners may have had some experience of data collection in Primary School or as part of the Maths/ Science curriculum. | Depending on their Primary School, learners may have had experience using an Animation App but will not have made an animation in Blender. Learners will have had experience in creating and manipulating shapes in graphical shapes. | Learners may have had experience of dealing with large data sets but it is unlikely they will have knowledge or experience of using Access. | Learners may be have had use of a WYSIWYG web design software. Learners may also be aware of some of the issues, but not to this level of depth. Learners may have some knowledge of some of the elements but not to this depth. |
| **Is knowledge embedded consistently across the SOW?** | Yes, see learner booklet and SOW/ Lesson PPT. | Yes, see learner booklet and SOW/ Lesson PPT. | Yes, see learner booklet and SOW/ Lesson PPT. | Yes, see learner booklet and SOW/ Lesson PPT. |
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| **What (if any) additional vocabulary is needed to access this SOW?** | Some Tier 2 vocabulary as well as basic Tier 3 vocabulary such as Copy & Paste.  Some mathematical terminology such as the accurate names of different charts and the terminology related to charts e.g. axis. | Some Tier 2 vocabulary as well as basic Tier 3 vocabulary such as Copy & Paste.  Some mathematical terminology such as the accurate names of a range of polygons and angles and working in 3D. | Some Tier 2 vocabulary as well as basic Tier 3 vocabulary such as Copy & Paste. | Some Tier 2 vocabulary as well as basic Tier 3 vocabulary such as Copy & Paste. |
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**Year 9**

|  | **Topic 1: Graphics** | **Topic 2: Augmented Reality** | **Topic 3: Complex Spreadsheets** | **Topic 4: Cyber-Security Attacks** |
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| **Knowledge** | How to use and apply a range of tools in Inkscape.  The role and use and icons as an image.  The role of annotation in a design.  Discuss the use of colour and opacity in creating the image. | The difference between AR and VR.  How AR can be used for a range of purposes.  The advantages and disadvantages of using AR.  The use of a visualisation diagram as a planning tool.  How to use and apply a range of tools in XR+. | Understand the difference between formulae and functions and where to use each.  The purpose of a range of formulae and functions in a spreadsheet.  The benefits of applying conditional formatting to cells in a spreadsheet.  Why cell protection is applied in a spreadsheet. | Explain the different methods of performing a cyber-security attack.  Explain a range of malware types including how they work.  Explain a range of social engineering methods including how they work.  Describe how a series of vulnerabilities can be exploited using examples.  Explain the different methods of preventing a cyber-security attack using relevant examples.  Discuss the impact of cyber-security attacks from different perspectives.  Describe the strengths and weaknesses of different methods of preventing data leaks. |
| **Skills** | Manipulate complex shapes to create an image for a given purpose.  Edit and apply appropriate colours and filters to enhance image.  Export an image to an appropriate format.  Evaluate a completed image, explaining the choice of tools to meet the design decisions. | Use appropriate triggers to enhance a prototype.  Import and manipulate images to create a prototype for a given purpose.  Preview your prototype to ensure it looks suitable on all three axes.  Create a suitable visualisation diagram for a prototype. | Apply a range of formulae and functions to a spreadsheet.  Apply appropriate formatting to selected cells in a spreadsheet.  Import images into a spreadsheet.  Apply appropriate protection to cells in a spreadsheet. | Create a suitable site using the tools available.  Insert text, videos and images with a clear layout to meet the criteria.  Create an interactive menu that links to pages so that the viewer can easily navigate the site. |
| **Vocabulary** | Node  Palette  Swatch  Gradient  SOAP  Vector  Bitmap  Pixel  Bézier  Annotation | Action  Anchor  Behaviour  Trigger  Surface  Augmented Reality  Virtual Reality  Asset  Layer  Prototype | COUNTIF  Validation  Conditional Formatting  IF Statement  Alignment  Cell Protection  Cell Reference  Parentheses  Boolean  IFS Statement | Malware  Social Engineering  Hacking  Pharming  DDoS  Adware  Polymorphic Malware  Vishing  Backdoor  Backup |
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| **How does this knowledge link to/build on prior knowledge?** | Learners will have prior knowledge of some graphics software and being able to create an image using shapes and editing the shapes. Learners will have also experience in using blocks of colour and different pen types. | Learners may have experience in using AR as part of cross-curricular learning e.g. in Geography or Science. Learners may have some experience in creating an App through drag & drop blocks in 2D. | Learners may have had some experience using a spreadsheet in Primary School through packages such as Excel or other apps.  Learners in Yr 7 will have had experience using Google Sheets to create a simple financial model using SUM and VLOOKUP formula as well as basic formatting such as formatting data as currency. | Learners may be have had use of a WYSIWYG web design software. Learners may also be aware of some of the issues, but not to this level of depth. Learners may have some knowledge of some of the elements but not to this depth. |
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