Advanced multimedia: Digital media in Technology subjects

Participant workbook
Acknowledgements

The Technology Unit of the Curriculum K-12 Directorate has developed the *Advanced multimedia: Digital media in Technology subjects* professional learning workshop for secondary technology teachers in NSW public schools to enhance the teaching of multimedia in a range of Technology subjects.

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Aims of the workshop

This workshop will assist you to:

• implement advanced multimedia project work with students in Stage 5 and 6 Technology subjects
• identify syllabus content related to advanced multimedia projects
• explore advanced multimedia techniques, in particular, Flash CS4
• experiment with Flash CS4 and create a project using this software
• become familiar with the TaLe and CLI web site and other useful resources.

NSWIT course registration

The DET is a NSW Institute of Teachers endorsed provider of professional development for the maintenance of accreditation at Professional Competence.

Scope of endorsement – all Elements of the Professional Teaching Standards.

NSW IT course code:
This DET course or program has been submitted for registration for professional development under the terms of the NSW Institute of Teachers Continuing Professional Development policy.

For teachers accredited at Professional Competence, it is anticipated that completion of this course or program will contribute five hours towards Institute Registered professional development.

This course or program if registered will address the following Professional Teaching Standards:

1.2.1 Apply and use knowledge of the content/discipline(s) through effective content-rich, teaching activities and programs relevant to the stage.

1.2.4 Apply current knowledge and skills in the use of ICT in the classroom to meet syllabus outcomes...

6.2.3 Engage in professional development to extend and refine teaching and learning practices.
Overview

<table>
<thead>
<tr>
<th>TIME</th>
<th>SESSION FOCUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.45 am</td>
<td>Register</td>
</tr>
<tr>
<td><strong>Session 1</strong></td>
<td></td>
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<tr>
<td>9.00 am</td>
<td>Welcome</td>
</tr>
<tr>
<td></td>
<td>Workshop overview</td>
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<tr>
<td><strong>Session 2</strong></td>
<td></td>
</tr>
<tr>
<td>9.30 am</td>
<td>Graphics and movie clips</td>
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<tr>
<td></td>
<td>Review the basic layout and function of Flash CS4.</td>
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<tr>
<td></td>
<td>Develop skills in the creation of vector graphics built to animate.</td>
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<tr>
<td>11.00 am</td>
<td>MORNING TEA</td>
</tr>
<tr>
<td><strong>Session 3</strong></td>
<td></td>
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<tr>
<td>11.20 am</td>
<td>Animation</td>
</tr>
<tr>
<td></td>
<td>Create the two of the three types of animation available in Flash CS4</td>
</tr>
<tr>
<td></td>
<td>• Path based</td>
</tr>
<tr>
<td></td>
<td>• Cell based</td>
</tr>
<tr>
<td></td>
<td><strong>Project</strong></td>
</tr>
<tr>
<td></td>
<td>Navigate the project (scene and object).</td>
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<tr>
<td></td>
<td>Create a button and duplicate for use with action scripting.</td>
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<tr>
<td>1.00 pm</td>
<td>LUNCH</td>
</tr>
<tr>
<td><strong>Session 4</strong></td>
<td></td>
</tr>
<tr>
<td>1.40 pm</td>
<td>Project continued</td>
</tr>
<tr>
<td></td>
<td>Develop a Flash project using button and action scripting.</td>
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<tr>
<td></td>
<td><strong>Exploring Flash: What’s new?</strong></td>
</tr>
<tr>
<td></td>
<td>• Bone tool</td>
</tr>
<tr>
<td><strong>Session 5</strong></td>
<td></td>
</tr>
<tr>
<td>3.10 pm</td>
<td>Resources</td>
</tr>
<tr>
<td></td>
<td>Preview a range of resources to support teaching and learning in Technology subjects.</td>
</tr>
<tr>
<td>3.20 pm</td>
<td>Workshop evaluation</td>
</tr>
<tr>
<td>3.30 pm</td>
<td>CLOSE</td>
</tr>
</tbody>
</table>
Activity 1

Purpose: Review the multimedia related content for a Stage 5 or 6 Technology course.

1. Review the multimedia related content for a Stage 5 or 6 Technology course on the following pages.
2. Discuss with the person next to you where you might use animation in the multimedia course that you teach.
### Multimedia related content for Stages 5 and 6 Technology courses

#### Design and Technology Stages 5 and 6

Design and Technology stage 5 or 6 does not have a specific component on multimedia. However, the study of designers and their work can be used as a case study and a multimedia project.

<table>
<thead>
<tr>
<th>Course</th>
<th>Outcomes</th>
<th>Students learn about</th>
<th>Students learn to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 5</td>
<td>5.3.1 analyses the work and responsibilities of designers and the factors affecting their work</td>
<td></td>
<td>• identify ICT applications used by designers and the impact on their work</td>
</tr>
<tr>
<td>Stage 6</td>
<td>HSC H1.2 relates the practices and processes of designers and producers to the major design project</td>
<td>• the work of designers design practice processes used by designers</td>
<td>• emulate, where appropriate, the practices and processes used by designers to assist in the development of the major design project</td>
</tr>
<tr>
<td></td>
<td>H6.1 justifies technological activities undertaken in the major design project through the study of industrial and commercial practices</td>
<td>practices in industrial and commercial settings as they relate to the major design project including; • production techniques</td>
<td>• identify design and production processes used in domestic, community, industrial and commercial settings</td>
</tr>
</tbody>
</table>
Industrial Technology: Multimedia Stages 5 and 6

- Projects should promote the sequential development of skills and reflect an increasing degree of student autonomy as they progress through the course.

- To satisfy the requirements of the syllabus students must undertake a range of practical experiences that occupy the majority of course time. Practical experiences should be used to develop knowledge and understanding of and skills in designing, producing and evaluating. Student capability, confidence and expertise at their current stage of development are important considerations in determining the teaching and learning sequences in the course. (7–10 syllabus, p. 123)

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<tbody>
<tr>
<td>Stage 5</td>
<td><strong>Core Module 1</strong>&lt;br&gt;Equipment tools and machines 5.2.2, 5.4.2, 5.5.1&lt;br&gt;5.5.1 applies and transfers acquired knowledge and skills to subsequent learning experiences in a variety of contexts and projects</td>
<td>• a range of equipment, tools and machines in the multimedia industry which may include: &lt;br&gt;– analogue and/or digital cameras &lt;br&gt;– scanners – flat bed and/or film &lt;br&gt;– removable storage devices &lt;br&gt;– printers</td>
<td>• use a variety of hardware items in the development and production of multimedia projects</td>
</tr>
<tr>
<td></td>
<td>Links to industry 5.5.1, 5.7.2</td>
<td>• industrial processes and production techniques</td>
<td>• relate elementary industrial production techniques to work in the classroom</td>
</tr>
<tr>
<td></td>
<td><strong>Core module 2</strong>&lt;br&gt;Materials 5.3.1, 5.3.2, 5.5.1</td>
<td>• a variety of motion types and formats used in the multimedia industry including:&lt;br&gt;– cell and path-based animation &lt;br&gt;– video capture and creation &lt;br&gt;– digital file formats</td>
<td>• select and use motion software</td>
</tr>
<tr>
<td></td>
<td>Techniques 5.2.2, 5.4.2, 5.5.1</td>
<td>• a variety of video and animation processes and software used in the multimedia industry</td>
<td>• capture and/or create motion using a range of methods</td>
</tr>
<tr>
<td></td>
<td>Links to industry 5.5.1, 5.7.2</td>
<td>• industrial techniques and processes</td>
<td>• relate industrial production techniques to work in the classroom</td>
</tr>
</tbody>
</table>
| Stage 5 | **Specialised Module 3**  
Materials  
5.3.1, 5.3.2, 5.5.1 | • motion properties such as:  
– frame rate  
– size and scale  
– data rate  
– compression codecs | • identify and select motion creation settings |
| --- | --- | --- | --- |
| Techniques  
5.2.2, 5.4.2, 5.5.1 | • methods of motion and audio creation used in the multimedia industry | • create and integrate motion into multimedia presentations |
| Additional content | • the role of multimedia in advertising products and services | • create suitable character or product animations for use in multimedia presentations  
• use a variety of software applications to produce animations and sound for a web-based project  
• create self-extracting/self-executing media |
| **Specialised Module 4**  
Materials  
5.3.1, 5.3.2, 5.5.1 | • the properties of multimedia elements in relation to file size, storage and delivery of multimedia presentations | • analyse and compare a range of file types, properties and settings during the production of multimedia presentations |
| Equipment tools and machines  
5.2.2, 5.4.2, 5.5.1 | • a range of input, processing, output and storage devices used in multimedia | • identify, select and use a variety of hardware items to complete multimedia projects  
• analyse and compare memory, processing speed and storage requirements for multimedia presentations |
| Techniques  
5.2.2, 5.4.2, 5.5.1 | • a variety of video and animation processes and software used in the multimedia industry | • incorporate text, graphics, animation, sound and video into multimedia projects |
| Links to industry  
5.5.1, 5.7.2 | • industrial processes and techniques related to the multimedia industry | • analyse and compare the current techniques, materials and equipment used in industry to develop and produce projects similar to those undertaken in the classroom  
• compare and contrast industrial practices with classroom experiences |
<p>| Additional content | • the role of multimedia in the cinematic industry | • produce character models and animations using a variety of software |</p>
<table>
<thead>
<tr>
<th>Course</th>
<th>Outcomes</th>
<th>Students learn about</th>
<th>Students learn to</th>
</tr>
</thead>
</table>
| Stage 6 | Preliminary | appropriate software relevant to the project in the areas of:  
– animation creation/capture/editing | author a multimedia product |
| HSC | **Animation**  
2D animation  
– cel animation (stop motion, claymation)  
– path animation  
– behaviour animation  
– morphing and tweening  
– frame rates  
– transitions  
– looping  
3D animation  
– modelling  
– wire frame  
– rendering  
– morphing  
– warping  
– motion capture | • author a multimedia Major Project  
• select and competently use a range of input and output devices, printers, cameras and scanners in the production of the Major Project  
• investigate and use a range of multimedia components in the development and publishing of the Major Project  
• select from a wide range of industry techniques and apply them in the production and presentation of the Major Project  
• obtain, create and modify images, sound and text  
• identify and discuss animation requirements, scope of 2/3D animation software |
# Information and Software Technology Stage 5

<table>
<thead>
<tr>
<th>Course</th>
<th>Outcomes</th>
<th>Students learn about</th>
<th>Students learn to</th>
</tr>
</thead>
</table>
| Stage 5 | **Option 2: Authoring software systems**  
5.2.1 describes and applies problem-solving processes when creating solutions  
5.2.2 designs, produces and evaluates appropriate solutions to a range of challenging problems  
5.2.3 critically analyses decision-making processes in a range of information and software solutions. | • the combining of data types into a multimedia presentation using existing application products such as HyperStudio and Macromedia software | • discuss advantages and limitations of authoring software  
• justify the selection of the authoring software to be used for the multimedia product |
| **Option 4: Digital Media**  
5.2.1 describes and applies problem-solving processes when creating solutions  
5.2.2 designs, produces and evaluates appropriate solutions to a range of challenging problems  
5.2.3 critically analyses decision-making processes in a range of information and software solutions. | Types of digital media products such as  
• animation sequences  
**Manipulation techniques** such as  
• morphing, tweening | • select and use appropriate file formats for the digital media product  
• manipulate data types for specific digital media products |
## Information Processes and Technology Stage 6

<table>
<thead>
<tr>
<th>Course</th>
<th>Outcomes</th>
<th>Students learn about</th>
<th>Students learn to</th>
</tr>
</thead>
</table>
| Stage 6 | HSC H2.2 develops and explains solutions for an identified need which address all of the information processes | characteristics of multimedia systems  
• multimedia systems – information systems that include combinations of the following media, including:  
  – images and/or animations  
  – image processing, including morphing and distorting animation processing, including tweening  
  – software for creating and displaying  
  – multimedia | • identify multimedia software appropriate to manipulating particular types of data  
• distinguish between different approaches to animation including pathbased and cell-based through practical investigations  
• implement features in software that support the displaying of multimedia and explain their use  
• create samples of the different media types suitable for use in a multimedia display  
• design and create a multimedia presentation |
Activity 2

Purpose: Review the basic layout and function of Flash CS4; develop skills in the creation of vector graphics built to animate.

1. Import graphics into the library.
2. Create a simple graphic using layers, which will then be animated.
3. Refer to the Advanced multimedia Flash manual.

Participant notes:
Activity 3

Purpose: Create and explore the three types of animation available in Flash CS4.

1. Create an animation using the Path based method.
2. Create an animation using the Cell based method.

Participant notes:
Activity 4

Purpose: Explore the potential of action scripting.

1. Develop a *Flash* project using button and action scripting.
2. Create an animation using the Bone tool.

Participant notes:
Session 5

Purpose: Preview a range of resources to support teaching and learning in Technology subjects.

*Flash CS4*
*Adobe*
http://www.adobe.com/support/flash/
- Action script help and references.
- Tutorials: simple to advanced.
- Top picks: a range of examples.
- Trouble shooting.

http://www.adobe.com/community/
- Blogs for students and teachers on a variety of Adobe applications.

http://www.adobe.com/education/k12/
- Showcase galleries of student awards and students can enter school innovation awards.

http://www.adobe.com/education/k12/
- Teacher resources, including curriculum (although USA), tutorials and electronic portfolios.

*Curriculum Support*
- Fantastic new site developed to support our KLAs and DER

*TaLe*
http://lrrpublic.cli.det.nsw.edu.au/lrrSecure/Sites/LRRView/8366/8366_00.htm?Signature=(ee643873-6334-4a4f-8105-b7a14890b61f)
- Range of resources from CLI. Links to tutorials on the Adobe suite.

*Flash tutorials*
http://www.tutorialized.com/tutorials/Flash/1
http://www.w3schools.com/Flash/default.asp
- This site has an amazing number of tutorials and free templates.

*Music*
Free play music
http://www.freeplaymusic.com/
- Royalty free music. Available in a variety of formats and genres.
Photos
Free digital photos
http://www.freedigitalphotos.net/

- Royalty free photos. Available in a variety of formats and genres.

General
Under My applications in the DET portal select Integrating ICT in Teaching and Learning.

- This web site offers online modules focusing on integration of ICT supported by teaching and learning activities designed to meet syllabus outcomes K-12.

Australian Designers at work
http://www.powerhousemuseum.com/designersatwork/

- Case studies on designers. Visual effects designer Toby Grimes is showcased including a gallery of his work and his process of design.

Content allocation tool for IST digital media

Visual arts digital media tutorials

Food in Australia digi stories

Copyright for teachers
http://lrr.dlr.det.nsw.edu.au/LRRView/7690/7690_00.htm

Screen Australia

Connected learning awards
http://cliwww.det.nsw.edu.au/awards/cli/connected_learning/cl_awards/cl_awards.shtm