



THE  
**le@rning**  
FEDERATION

schools online curriculum content initiative

# LEARNING OBJECTS Catalogue



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JULY 2007

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## Arts, design and technology

The *Arts, design and technology* set of learning objects focuses on creative skills, and critical and aesthetic appreciation of artistic techniques and technologies in media, music and visual arts.

Details of learning objects released to date are provided in addition to a key graphic representation. An asterisk (\*) on the series title indicates that not all the learning objects in that series have been released. The remaining learning objects will be released progressively. Some learning objects are aggregated into a sequence. Aggregated learning objects are identified with the symbol .

Some learning objects contain non-TLF content. See the Acknowledgements and Conditions of use in the learning objects for details.

Government and non-government education authorities in each Australian state and territory and in New Zealand have responsibility for facilitating access to the pool of learning objects. Contact TLF's Contact Liaison Officer (CLO) in your state, territory, school sector or country for details.

For further information about TLF, learning objects and for CLO contact details go to the website at <http://www.thelearningfederation.edu.au>.

## Sonic (Years 6–10)

In the Sonic series, students explore and manipulate sounds, video and images to create their own compositions. Exploration, analysis and synthesis of this process is encouraged to develop an understanding of the different purposes of the creative arts in real-life contexts. Sonic has three subseries: Sonic space, Sonic time and Sonic motion.

In this series, 3D rendering is used. Check the technical requirements in the metadata if operational difficulties are experienced.

### Sonic space

In the Sonic space learning objects, students explore noises from home, the city, within the human body, in remote landscapes, in futuristic settings or in the Asia–Pacific region.



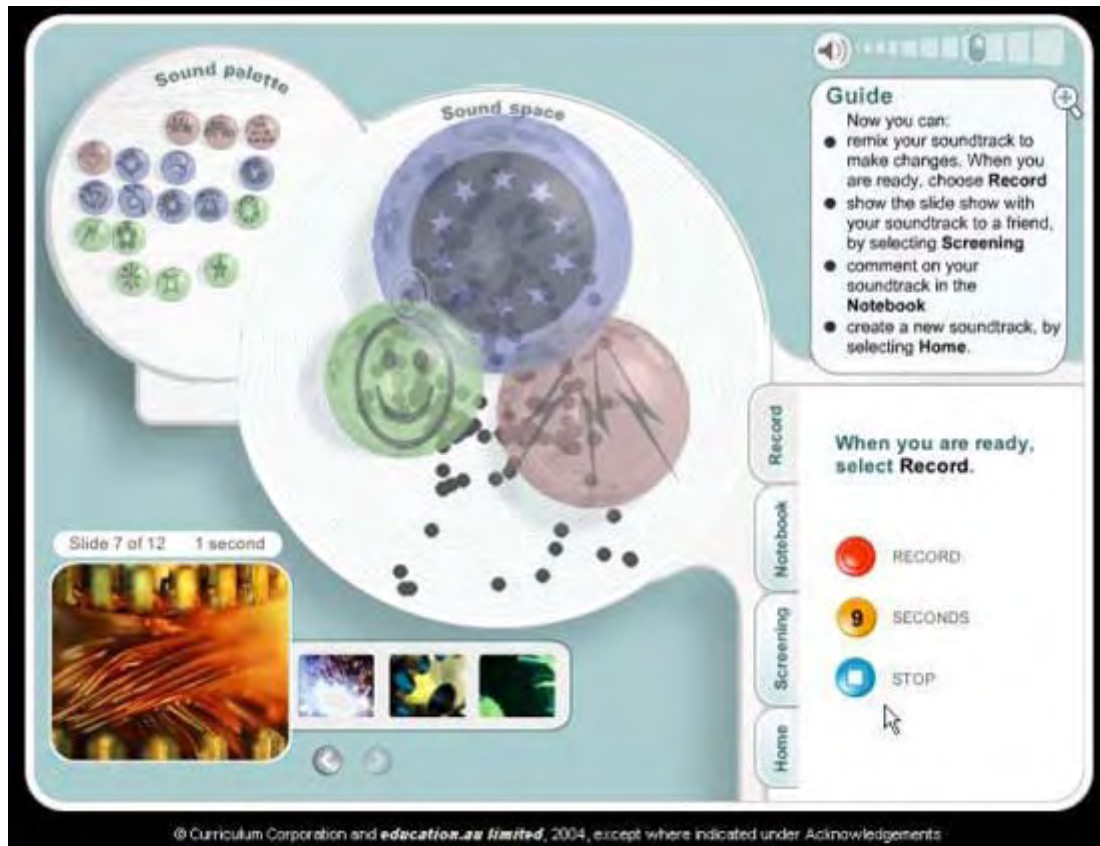
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Learning objects	LO ID	Years
Sonic space: city	543	6–8
Sonic space: travel	887	6–8
Sonic space: home	888	6–8
Sonic space: micro	884	8–10
Sonic space: remote region	885	8–10
Sonic space: future mall	886	8–10

Students can select and arrange the sounds to make a soundscape and record and play back their composition. The learning objects encourage students to experiment with order, volume, pauses and repetition, and add colour and other visual elements to enhance their work. The difference between the 6–8 and 8–10 levels is the type of note-taking and critical reflection required of students. Notes and reflections can be printed.

### Sonic time

In the Sonic time series, students are asked to make a soundtrack to accompany a production company's slide show.



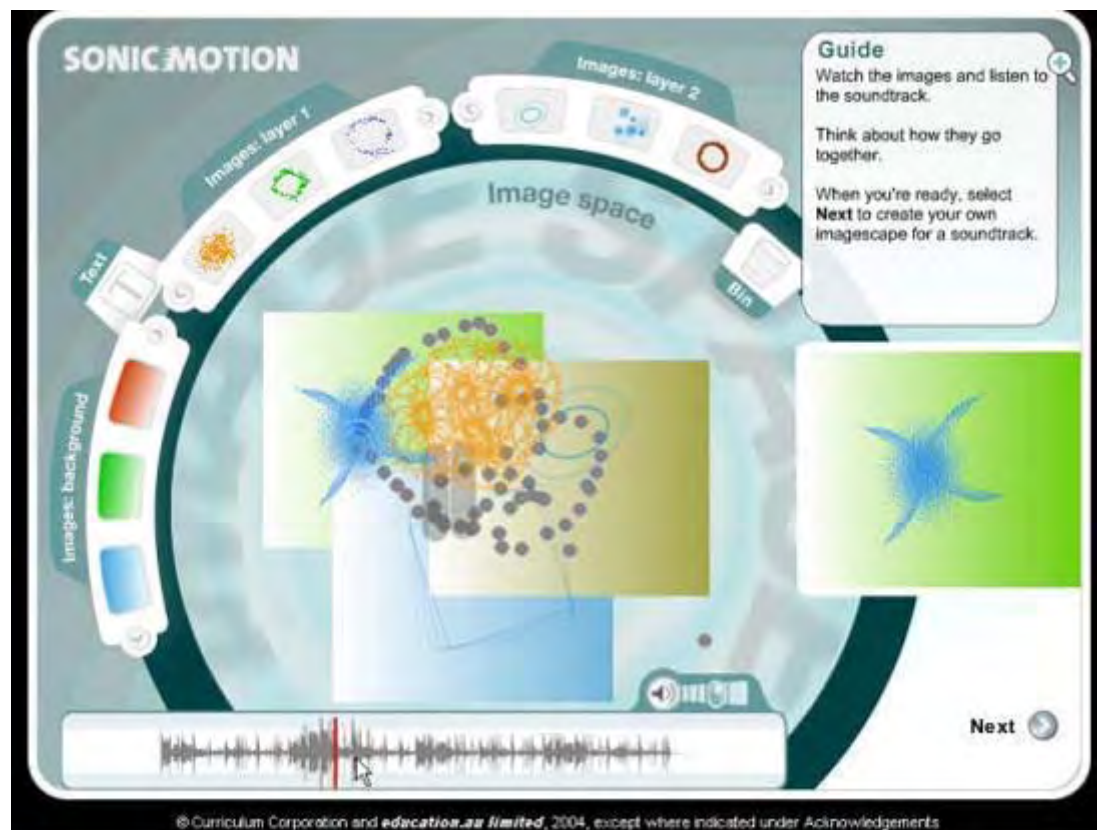
Learning objects	LO ID	Years
Sonic time: our world	858	6–8
Sonic time: fun time	889	8–10

'Sonic time: fun time' contains non-TLF content. See Acknowledgements in the learning object.

Students select a slide show to work on and choose sounds from a sound palette to make a soundscape to suit the atmosphere of the images portrayed in the slide show. They plan how to combine the sounds with images for a live audiovisual performance and are required to take notes and reflect on the process. The difference between the 6–8 and 8–10 levels is the type of note-taking and critical reflection required of students. Notes and reflections can be printed.

### Sonic motion

In the Sonic motion learning objects, students choose a soundtrack and then make an imagescape by mixing images, visual effects and text to match the mood of the soundtrack. They experiment with order, pace, brightness, repetition and contrast of the visual elements.



Learning objects	LO ID	Years
Sonic motion: water world	883	6–8
Sonic motion: living earth	890	8–10

The difference between years 6–8 and 8–10 levels is the type of note-taking and critical reflection required of students. Notes and reflections can be printed.

## Found art (Years 7-8)

The Found art series of learning objects enables students to bring new and different meaning to found objects as they position them within a new context of understanding and interpretation. Student learning focuses on key concepts such as assemblage, contrast, creativity, juxtaposition, repetition, composition, transformation and perspective. In addition, student use decision-making skills to develop themes.



Learning object	LO ID	Years
Found art: beach	3626	7 - 8
Found art: city	3627	7 - 8
Found art: park	3628	7 - 8
Found art: outback	3629	7 - 8

In these learning objects, students are introduced to an environment such as a beach, and are asked to participate in a community exhibition to create a design from found objects. Students are presented with the design themes for the environment or can choose their own and have access to a visual glossary to explain key concepts.

Students explore the environment and select objects and materials to create their own design using a range of interactive tools such as scale, tone, move and rotate. They evaluate and reflect on their chosen materials, theme and creative process in their workbook and describe how they could use their design to work with real objects. The workbook, including snapshots of the progression of the design, can be printed later.

### Found art: beach

Students explore a beach environment and create a design using objects found in rock pools, sand dunes, the tidal zone and a rubbish bin.

### Found art: city

Students explore a city environment and create a design using objects found in a café, waste bin, kiosk and street gutter.

**Found art: park**

Students explore a park environment and create a design using objects found in a play area, and on a bush track, picnic table and miner's track.

**Found art: outback**

Students explore an outback environment and create a design using objects found in the bush, a woolshed, camp fire and on a scrap heap.

## Innovation cycle (Years 7–9)

In the Innovation cycle series, the student explores the different stages of the innovation cycle. They identify and apply research methods to advance an innovative design solution that meets pre-determined requirements.



Learning object	LO ID	Years
Innovation cycle: idea	2285	7–9
Innovation cycle: research and development	2286	7–9
Innovation cycle: design	2289	7–9
Innovation cycle: patent	2288	7–9
Innovation cycle: resource	2287	7–9
Innovation cycle: make	2290	7–9
Innovation cycle: sell	2291	7–9
Innovation cycle: service	2292	7–9

'Innovation cycle: research and development' contains non-TLF content. See Acknowledgements in the learning object.

Students explore the connections between ideas and development of a product through research, developing ideas, prototypes, testing and selling.

Using this series students learn to be flexible in dealing with change and unexpected outcomes and monitor and evaluates processes and outcomes in a variety of ways.

### Innovation cycle: idea

Students are provided with information about a real-life innovation, ResMed Breathing Aids, and explore this case study to learn how innovators develop ideas.

Students observe a simulated brainstorming session and complete a decision-making tree exercise to determine the most effective response to a problem.

Students learn to recognise a need or opportunity and creative thinking for problem-solving.

**Innovation cycle: research and development**

Students are provided with information about a real-life innovation, Australian tea tree oil, and explore this case study to learn how innovators use research and development to test and develop ideas.

Students observe simulated laboratory tests of different types of materials and are asked to assess the material most suitable based on a given criteria. Students then evaluate methods of research and development for an innovation against pre-determined criteria.

This learning object helps the student explore how to use a research and development process to innovate and how testing can be used to make decisions on selecting materials that best suit an identified purpose.

**Innovation cycle: design**

Students are provided with information about a real-life innovation, Sydney 2000 Olympic torch, and explore this case study to learn the stages and processes involved in designing an innovative product.

Student observes simulated field research and laboratory testing to assess the most suitable shape of a product based on appearance and functionality. Students then evaluate the best design of a product against pre-determined criteria.

Students learn how design turns the sum of ideas and research into a product, system or environment and how important design is for taking an idea into a marketable product.

**Innovation cycle: patent**

Students are provided with information about a real-life company, the Bishop Technology Group, and explore this case study to learn how innovators use patent to protect innovative ideas.

Student observe simulated interviews to determine what the most appropriate type of Intellectual Property (IP) protection should be taken on a new type of product. This looks at issues of intellectual property, copyright, patent and Trademark <sup>TM</sup>. Students then evaluate types of IP to protect the design innovation against pre-determined criteria.

Students learn how different types of IP can be used to protect an innovation or invention.

**Innovation cycle: resource**

Students are provided with information about a real-life innovation, Clean Up Australia, and explore this case study to learn how innovators use resources to develop ideas and promote products.

Students observed simulated interviews to determine which stage of the development a particular product should be outsourced. Students then evaluate opportunities for resourcing against pre-determined criteria.

Students learn that identifying and harnessing resources enables an idea to be designed, researched, manufactured, distributed, sold, and serviced.

**Innovation cycle: make**

Students are provided with information about a real-life innovation, the Caroma Dual Flush Toilet, and explore this case study to learn how innovators manufacture design elements to market innovative ideas.

Student observes simulated field research and laboratory testing to assess the most suitable aspect of manufacturing of a product based on appearance and functionality. Students then evaluate production process against pre-determined criteria and make a choice of the preferred one.

Students explore the balance that is needed between price, quantity, quality and timeliness.

**Innovation cycle: sell**

Students are provided with information about a real-life innovation, Victa Lawn Mowers, and explore this case study to learn how innovators choose distribution strategies to market innovative ideas.

Students observe simulated interviews and surveys to determine what would be the best form of distribution to generate the most sales for a new product. Students then evaluate the various distribution strategies against pre-determined criteria.

Students learn about the 4 Ps (product, price, place, promotion) of marketing, the use of target marketing, and understanding the buying behaviour of the target market.

**Innovation cycle: service**

Students are provided with information about a real-life innovation, Incat Catamarans, and explore this case study to learn how innovators use service strategies to market their innovative products.

Students observe simulated animations to determine different types of sales service, such as pre-sales service and after-sales service. Students then complete a decision-making tree exercise to determine the most effective type of sales service for a pre-determined problem.

Students learn to recognise a need or opportunity and creative thinking for problem-solving.

## Creativity: Fifi Colston (Years 7–10)

In Creativity: Fifi Colston, students explore Fifi Colston's studio and discover how she creates wearable art. Using Fifi as a guide, students are introduced to the creative process including aspects such as inspiration, motivation, planning and techniques.



Learning objects	LO ID	Years
Creativity: Fifi Colston	1778	7–10

This series contains non-TLF content. See Acknowledgements in the learning object.

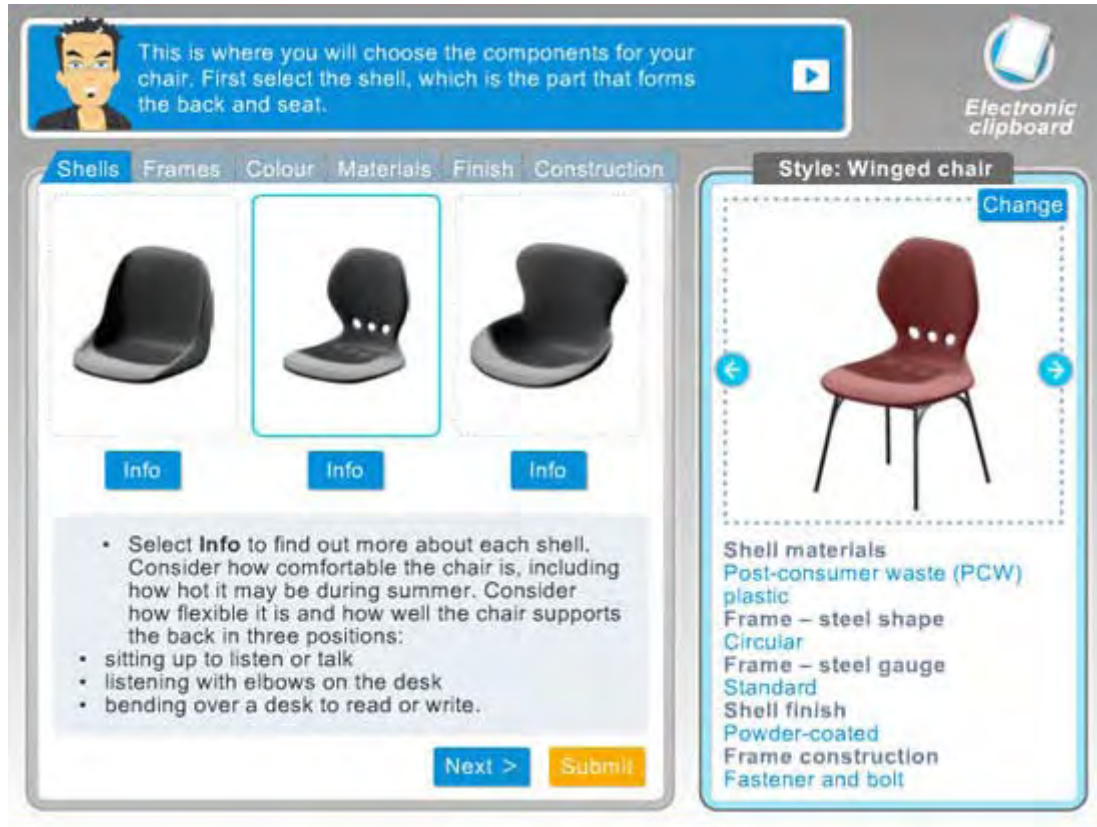
Once students have read through, reflected and arranged their thoughts on Fifi's work, they begin to plan a design to communicate a message of their own by creating their own piece of virtual wearable art.

Students are prompted to choose everyday objects and materials to include on a design palette with paint, stamp and pattern painting features. On completion of their design, students are asked to reflect on their art and their artistic process.

Students have the opportunity to print out their workbook and capture their image to paste into a computer application such as MS Word.

## Directional design (Years 7–10)

In the Directional design series students are given a product design brief to build an everyday object found at school or home that is well suited to the built environment in which it will be used. Students are encouraged to choose design features, production and maintenance processes for the object that minimise negative impacts on the natural environment.



Learning object	LO ID	Years
Directional design: classroom chair	2962	9–10
Directional design: cafeteria chair	3108	9–10
Directional design: computer lab chair	3110	9–10
Directional design: study lamp	3112	9–10
Directional design: study desk	3114	9–10

In each of the learning objects the student helps the designer 'Jay' to design an item and then adapt and refine their design on the basis of client feedback. An interactive clipboard stores the design brief, the specific user requirements and the client feedback for easy reference. A one-year and five-year review of the performance of the object is presented and students evaluate and reflect on their design process on a printable evaluation form.

Design requirements for each of the learning objects have a particular focus:

- Directional design: classroom chair: ergonomics
- Directional design: cafeteria chair: hygiene and stylishness
- Directional design: computer lab chair: ergonomics, robustness and strength
- Directional design: study lamp: stylishness
- Directional design: study desk: ergonomics, multiuse and style.