

Gifted and Talented Education



Extract from *Support package: Curriculum differentiation*

The Maker model



The Maker model

Maker (1982) devised a very practical model of curriculum differentiation. This model shows how content can be adjusted to accommodate the ability of gifted students to manipulate abstract ideas and deal with complexity. The process component of the model involves the methods that are used by teachers to present information, the questions asked of students and the mental and physical activities expected of them. This dimension of curriculum design is focused on higher-level thinking, creative problem-solving, decision-making, planning and forecasting.

Maker (1982) also emphasises the importance of allowing students to create products that solve real-world problems. It is also important to provide gifted students with the opportunity to present work to a variety of audiences for constructive appraisal. Gifted students benefit from negotiating evaluation criteria and being involved in the process of evaluation itself. These ideas are consistent with the practices recommended in the document *Quality teaching in NSW public schools: Discussion paper* (NSW Department of Education and Training, 2003).

The Maker model provides a framework for developing optional material that can be incorporated into a program for gifted students. Not all of the possible adjustments need to be adapted; only those that will lead to meaningful outcomes for gifted students should be incorporated. The template below (Table 8) outlines the types of adjustments to curriculum that can be made.

Table 8: Maker model: Modifications

Content modifications

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|---|--|
| Abstraction (The focus of discussions, presentations and reading materials should be on abstract concepts, themes and theories) | Going beyond the facts |
| Complexity (Complexity is determined by examining the number and difficulty of concepts and disciplines that must be understood or integrated) | Dealing with greater breadth and depth |
| Variety (Students can work on different aspects of a broad theme and in their areas of interest) | Being exposed to new ideas or content |
| Organisation (Content is organised around key concepts or abstract ideas) | Selecting new arrangements of content |
| Study of people (Students research the lives of creative and productive individuals) | Relating content to humans |
| Methods of inquiry (Students study the methods of inquiry used in different disciplines) | Relating content to the methods used in a particular field |

Process modifications

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|--|--|
| Higher-order thinking skills (Instructional methods should stress the use rather than the acquisition of information) | Using questions from the analysis, synthesis and evaluation area of Bloom's taxonomy |
| Open-ended processing (Questions are provocative in that they stimulate further thinking and research into a topic) | Encouraging divergent thinking |
| Discovery (Activities stimulate inductive reasoning to find patterns and underlying principles) | Adopting an inquiry approach to determine own conclusions |
| Proof and reasoning (Students are required to explain the reasoning that led to their conclusions. Students learn about other students' approaches and learn to evaluate reasoning processes) | Being required to give reasons, substantiate conclusions |
| Freedom of choice (Choice of activities can be motivating and independent learning can meet the gifted student's preference for self-regulation. Some students need support to become independent learners) | Having opportunities for self-directed learning |
| Group interactions of like-ability peers (Structured and unstructured activities should be provided to enable both intellectual and socio-affective goals) | Enabling group problem-solving |

Product modifications

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|---|--|
| Real-world problems (Products should address problems that are meaningful to the students) | Investigating real-life problems |
| Real audiences (Gifted students are not developing products that are evaluated only by the teacher) | Using products for evaluation by teachers, peers, community, particular readership |
| Evaluations (Gifted students' products should be evaluated by appropriate audiences, their peers and themselves) | Undertaking teacher assessment and student evaluation using pre-established criteria |
| Transformation (Original work is produced when students are engaged in higher-order thinking) | Finding practical uses for what is learned |

(Adapted from Gross, Slep & Pretorius, 1999)

To illustrate the kinds of curriculum adjustments that can be made, consider the context where students are learning about the natural environment and are expected to achieve the following outcomes from the *Science and Technology K–6 Syllabus*. (The following could be modified for cross-curriculum studies including outcomes from the English and Human Society and Its Environment syllabuses).

Outcomes:

ES S3.6 *Recognises that the Earth is the source of most materials and resources, and describes phenomena and processes, both natural and human, that form and change the Earth over time*

INV S3.7 *Conduct ... own investigations and make ... based on the results of observing, questioning, planning, predicting, testing, collecting, recording and analysing data, and drawing conclusions*

Table 9 provides examples of possible activities using the Maker model.

Table 9: Maker model: The beach

Content modifications

| | |
|--------------------|---|
| Abstraction | Students examine material about different types of beaches. What is a beach and what kinds of beaches are there? |
| Complexity | Students consider the ways in which beaches are formed. What is the connection between a beach and the sea? How are beaches made? |
| Variety | Content additional to the regular curriculum is studied. What is sand? How can sand vary in composition from one beach to another? Why? |
| Organisation | Students conduct research about the geographical patterns of types of beaches. Choose a country in the Northern Hemisphere and compare and contrast its beaches with those of Australia. |
| Study of people | What are the human uses of beaches apart from recreation? Research the life of a famous artist, surfer, entrepreneur or engineer whose livelihood was closely connected with the beach environment. |
| Methods of inquiry | Are beaches privately or publicly owned? How are laws made about private and public ownership? |

Process modifications

| | |
|------------------------------|--|
| Higher-order thinking skills | Design the perfect beach. |
| Open-ended processing | What uses or purposes for beaches can you suggest that have not already been considered? |
| Discovery | What economic value do beaches currently have? |
| Proof and reasoning | Are sea levels changing? Provide evidence for your conclusions. |
| Freedom of choice | Develop a research question about your local beach and devise a procedure to answer it. |
| Group interactions | In small groups, discuss what the beach environment means for each person. |

Product modifications

| | |
|---------------------|--|
| Real-world problems | Students investigate how a mining company obtains useful resources from a beach. |
| Real audiences | Students develop products for evaluation by various people or groups e.g. peers, teacher, parents, Shire Council and make presentations about the social and economic values of beaches. |
| Evaluations | Students develop criteria to judge the extent of achievement of outcomes. |
| Transformation | Students produce a play called “The beach”. |



Activity 1

Locate the document, *Activities for differentiating the curriculum* at

<http://www.curriculumsupport.nsw.edu.au/gats/index.cfm>

Using your syllabus documents, select a content outcome and a skills outcome. Using the Maker template, develop activities and/or questions for each content, process and product modification.