ANZ–LOM Metadata Application Profile

Version 1.11

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1.0 Introduction

Interoperable standards and specifications are fundamental to support distributed management and access to learning content across Australia, New Zealand and internationally. ANZ–LOM focuses on standards that can be widely applied throughout the education sector in Australia and New Zealand.

2.0 Principles

The following principles apply to the development of the metadata specifications for ANZ–LOM:

- adoption of international metadata standards that are compatible with other Australian education sectors without compromising the goals of Australian school education

- adoption of metadata standards that do not compromise school education systems and sectors in achieving their own educational priorities

- recognition that optimisation of the learning value of digital learning content is fundamental in establishing interoperable metadata specifications;

- recognition that metadata needs to support the access, search, selection, use, trade and management of learning content

- recognition of the tension between the processes involved in the international and national standards initiatives and the pragmatic solutions required for the education sector in Australia and New Zealand.

Throughout application and implementation, Education Services Australia engages in consultation and reviews its metadata specifications. It actively monitors national and international metadata activities and, where appropriate, modifies specifications accordingly and provides feedback.

Education Services Australia works closely with several groups to support interoperable metadata standards across the Australian education sector: Standing Council on School Education and Early Childhood; AICTEC Standards Committee; Standards Australia; E-standards Expert Group; and the National Standards Interoperability Program (NSIP).

3.0 Purposes

This metadata application profile supports the following purposes.

3.1 Content management

ANZ–LOM metadata supports the production and quality assurance of learning content. It encompasses aspects such as version tracking and identification of contributors.

This application profile defines the metadata elements most useful to describe learning content. It is not appropriate for all elements to be applied to all learning content.

Educational publishers establish compliance agreements with a range of partners to produce content. These include:

- commissioned content providers

- external content providers

- information systems developers

- education networks responsible for downstream delivery of the assets.

These agreements inform the quality assurance framework for all online curriculum content. For commissioned online curriculum content this may commence at the content development tendering stage and apply throughout the development, testing, release and maintenance processes.

ANZ–LOM may be applied to any external content that may be republished or supplied to another learning management system.

Education Services Australia provides guidelines and support to facilitate the creation of metadata records conforming to this specification.

3.2   Educational purpose and value

The educational purpose and value of learning objects is described with elements for:

- the curriculum topic

- potential learning outcomes supported by the object

- teaching methods for presenting the material

- intended audience for the object.

3.3   Technical interoperability

Specification of common metadata enhances interoperability between the information systems that manage and deliver those learning objects. The ANZ–LOM Metadata Application Profile contains elements for describing the technical requirements needed to use the content.

3.4   Copyright and moral rights

To place a pool of legally reusable educational material within the reach of all Australian students and teachers involves respecting the copyright and moral rights of the owners of intellectual property. To achieve this, curriculum content must be managed to meet relevant statutory and contractual obligations, and optimise the creation, trade and usage of online content. This metadata application profile includes communication of copyright and moral rights. It does not focus on digital rights management.

3.5   Inclusive access

Education Services Australia has developed an accessibility specification that conforms to Commonwealth laws concerning accessibility. The specification outlines principles to ensure that project online resources and services are inclusive of a range of teaching and learning capacities, contexts and environments. It affirms policy commitments by state and territory education systems to inclusive educational provision. This metadata application profile contains support for describing the accessibility of online content.

3.6   Distributed delivery

Education Services Australia provides access to online educational content via central content repositories such as the 'Metadata Exchange' and the 'Sharing Exchange'. Education systems can retrieve online educational content from the central repositories and provide distribution through their online systems. The education systems also provide tools and e-learning environments required by schools.

4.0 Metadata framework

4.1   Application profile approach

Metadata application profiles consist of metadata elements drawn from one or more existing namespaces, combined and optimised for a particular application. A namespace identifies the management authority for particular metadata schema. An application profile has the following characteristics:

- draws from one or more existing namespaces

- does not introduce new data elements

- specifies permitted encoding schemes, vocabularies and values for the application that are in accordance with the namespace schema

- refines standard definitions within the namespace schema.

4.2   Metadata schemas referenced

The namespaces being used for ANZ–LOM are:

- IEEE Standard for Learning Object Metadata (IEEE 1484.12.1) [LOM v1.0]

- Dublin Core Metadata Element Set, v1.1 [DCMES v1.1]

- Sharable Content Object Reference Model [SCORM 2004].

4.3   Metadata model

The information model is based on and extends the information model used by the IEEE Learning Object Metadata standard [LOM v1.0].

4.3.1   Basic structure

Metadata elements are grouped into nine categories:

- The *general* category describes the digital asset as a whole and its management.

- The *life cycle* category groups the changes affecting the learning content during its history.

- The *meta-metadata* category records the management of the metadata of the learning content.

- The *technical* category groups the technical requirements and characteristics of the learning content.

- The *educational* category groups the educational and pedagogical characteristics of the learning content.

- The *rights* category groups the intellectual property rights and conditions of use for the learning content.

- The *relation* category groups the relationships between the learning content and other items.

- The *annotation* category enables recording of comments on the educational use of the learning content.

- The *classification* category enables identification of the characteristics of learning content as defined in structured classification systems. For example, classifications of competencies, subject schemes and accessibility characteristics of the learning content.

4.3.2   Structure of data elements

The information model is a hierarchy of data elements. Some data elements are combinations of sub-elements. Those elements may not have data values themselves; it is the data elements with no further sub-elements that have values. Data elements with sub-elements have values indirectly, through their sub-elements.

The hierarchy is indicated by the numbering scheme for metadata elements. For example, the following metadata element has two components:

> 1.1 Identifier
>
>> 1.1.1 Catalog
>>
>> 1.1.2 Entry.

4.3.3   Repeatability

Some metadata elements are repeatable. When an instance of a grouped metadata element is repeated, all of its sub-elements can appear in each repetition. For example, the following element is repeatable.

> 2.3 Lifecycle. Contribute

Every time this element is repeated, each of its sub-elements can be included.

4.3.4   Obligation

Some metadata elements are mandatory within the application profile for certain types of content. That is, mandatory metadata elements must appear in metadata instances conforming to this profile.

Elements may have both mandatory sub-elements and optional sub-elements. In this case, only the mandatory sub-elements must appear.

> Refer to IETF RFC 2119 for exact definitions of the following words: MUST, MUST NOT, REQUIRED, SHOULD, SHOULD NOT; RECOMMENDED; OPTIONAL.

Each data element and sub-element is described using a set of eight attributes from the ISO/IEC 11179 standard for the description of data elements.

Table 1 Metadata attributes

Attribute	Definition
Name	The label assigned to the data element.
Identifier	The unique identifier assigned in IEEE LOM to the data element.
Version	The version of the data element

Attribute	Definition		
Registration authority	The entity authorised to register the data element, and the identifier for the element used by that authority.		
Definition	A statement that clearly represents the concept and essential nature of the data element		
Obligation	Indicates if the data element is required to always or sometimes be present.		
	Value		**Definition**
	Mandatory		Required. A value must be supplied.
	Recommended		A value should be supplied unless there is a valid reason not to. If irrelevant, then do not enter any values.
	Optional		A value may be supplied if desired.
	Not recommended		Do not use this element; it may cause interoperability issues.
	Note: Some mandatory elements should be automatically maintained by a content management system. These are also noted in this table.		
Datatype	Indicates the type of data that can be represented in the value of the data element. Possible datatypes are CharacterString LangString Vocabulary CharacterString is the default datatype for all elements. When a vocabulary is indicated, this attribute also identifies the allowable values for the data element, either by listing values or referencing an external vocabulary.		
Maximum occurrence	Indicates any limit to the repeatability of the data element. The value '*' means there is no limit to repeatability. The value '1' means the element cannot be repeated. *Note*: a non-repeatable element may be repeated if it is a sub-element of a repeatable grouped data element.		

4.4   Datatypes

Datatypes indicate the type of data that can be represented in the value of the data. This application profile uses datatypes listed in the IEEE Standard for Learning Object Metadata [LOM].

4.4.1   CharacterString

CharacterString is the default datatype for all of the elements. CharacterStrings use characters from ISO/IEC 10646-1:2000: the international standard that specifies a character set that relies on 32 bits, and includes approximately 4 billion characters, of which the first 65536 are Unicode, the first 256 are ISO 8859-1, and the first 128 are ASCII.

4.4.2   LangString

A LangString contains a string and an indication of the language of that string. One possible representation is as a (language, string) pair. The language is indicated by an ISO 639 language code and an optional ISO 3166-1 country code. The language code is in lower case; the country code is upper case. For example:

> ('en-GB', 'A picture of the Mona Lisa').

4.4.3   Vocabulary

Data values from vocabularies must indicate the vocabulary from which they were sourced.

Vocabularies are represented as a (source/value) pair, except in 9 Classification where the (source/id/entry/purpose) structure is used.

An example (source/value) pair is the element '5.2 learning resource type', based on the Dublin Core DCMI type vocabulary. The 'Moving Image' value from this vocabulary would be indicated by the pair (DCMI Type/Moving Image).

Examples for vocabularies represented using the (source/id/entry/purpose) structure within the 9 Classification are tabled in in section 6.0 'Examples of applying classification systems'.

5.0   Metadata elements and sub-elements

Table 2 Metadata elements and sub-elements

Identi-fier	Name	Definition	Obligation	Max occur-rence	Datatype
1	General	This category groups general information that describes the learning content as a whole.	–	1	–
1.1	Identifier	Defines an entry within a listing	–	*	–

Identi-fier	Name	Definition	Obligation	Max occur-rence	Datatype
		identification system applied to this learning content.			
1.1.1	Catalog	The name of the listing identification system.	Mandatory#	1	CharacterString
1.1.2	Entry	Actual string value of the entry.	Mandatory#	1	CharacterString
1.2	Title	Name given to the learning content.	Mandatory	1	LangString
1.3	Language	The primary human language or languages used within the learning content.	Mandatory	*	CharacterString [unordered] ISO 639 Language code and optional ISO 3166 Country code. Language code in lower case and country code (if any) in upper case. For example: en = eng = standard English. en-AU = English with Australian spelling. mi = mri = Maori aus = Australian Indigenous languages are 🖉 = Western Arrarnta 🖉
1.4	Description	Textual description of the content of the learning content.	Mandatory	1	LangString [unordered]
1.5	Keyword	Keywords or phrases describing this learning content.	Mandatory	*	LangString [unordered]
1.6	Coverage	The span or extent of the coverage of the learning content.	Not recommended. Refer to element 9.	1	LangString [unordered]
1.7	Structure	'Underlying organizational structure of learning content'	Not recommended. Refer to element 9.		Vocabulary

Identi-fier	Name	Definition	Obligation	Max occur-rence	Datatype
1.8	Aggregation level	The functional granularity of this learning content.	Mandatory#	1	Vocabulary Integer derived from LOM v1.0 aggregation vocabulary. Interpretations: 1. if content is a single file. 2. if content contains multiple files. May include a single web page that links to one or more images or other resources.
2	Life cycle	This category describes the history and current state of this learning content and those who have affected it during its evolution.	–	1	
2.1	Version	This edition of the learning content.	Mandatory#	1	LangString
2.2	Status	The completion status or condition of this learning content.	Mandatory#	1	Vocabulary [subset of LOM v1.0 Status vocabulary] draft final revised unavailable
2.3	Contribute	This element describes those people or organisations that have affected the state of this learning content during its evolution. Note: Metadata contributors may be recorded in 3.2.	Mandatory	*	– [ordered]
2.3.1	Role	Kind of contribution.	Mandatory	1	Vocabulary Wherever possible, use values from the MARC Relators vocabulary, including URIs as identifiers.

Identi-fier	Name	Definition	Obligation	Max occur-rence	Datatype
					For example, 'Publisher' is identified as: http://id.loc.gov/vocabulary/relators/pbl 🔗 **Publisher:** must be included. **Copyright holder:** recommended wherever details are known. **Creator:** an 'Author' or more specific role must be included if known. Specific roles commonly applied are Artist, Photographer, Manufacturer, Director and Producer. Refer to MARC code list for relators: http://id.loc.gov/vocabulary/relators.html 🔗
2.3.2	Entity	The identification of and information about people or organisations contributing to this learning content.	Mandatory	1	Vocabulary [ordered] [vCard v3.0] tools.ietf.org/html/rfc2425 tools.ietf.org/html/rfc2426
2.3.3	Date	Date of the contribution. For example, when 2.3.1 role is 'Publisher', then this date is the 'date of publication'.	Recommended# (where role = 'Publisher') Optional (all other roles)	1	Vocabulary [W3C-DTF] for dates http://www.w3.org/TR/NOTE-datetime 🔗
3	Meta-metadata	This category describes the metadata record itself rather than the learning content.	Mandatory	1	–
3.1	Identifier	A globally unique label that identifies this metadata record.	–		–
3.1.1	Catalog	The name of the listing identification system.	Mandatory#		CharacterString

Identi-fier	Name	Definition	Obligation	Max occur-rence	Datatype
3.1.2	Entry	Actual string value of the entry.	Mandatory#		CharacterString
3.2	Contribute	Those entities that have affected the state of this metadata instance during its life cycle. Includes 3.2.1 Role; 3.2.2 Entity; 3.2.3 Date	Optional		– [ordered]
3.3	Metadata scheme		Mandatory#		CharacterString [unordered]
3.4	Language	Language of this metadata instance. This is the default language for all language strings.	Mandatory#	1	Vocabulary ISO 639 language code. Must be lower case.
4	Technical	This category describes the technical requirements and characteristics of the learning content.	–	1	–
4.1	Format	Technical data types of all the components of the learning content. This data element is used to identify the software needed to access the learning content.	Mandatory#	*	Vocabulary [unordered] [MIME Media types] Refer to IANA list of types and sub-types: http://www.iana.org/assignments/media-types 🗗
4.2	Size	The size of the learning content in bytes. This data element refers to the actual size of the learning content. If the learning content is compressed then this data element refers to the uncompressed size.	Mandatory#	1	CharacterString

Identi-fier	Name	Definition	Obligation	Max occur-rence	Datatype
4.3	Location	A string that resolves to an item location for accessing the item.	Mandatory#	*	CharacterString [ordered]
4.4	Requirement	This sub-category describes the technical capabilities required to use this learning content.		*	– [unordered]
4.4.1	OrComposite	Grouping of multiple requirements.			– [unordered]
4.4.1.1	Type	Type of requirement	Recommended	1	Vocabulary Refer to Technical Requirement vocabulary. Operating system; Browser; Browser plug-in. http://vocabulary.curriculum.edu.au/technicalRequirement 🔗
4.4.1.2	Name	Name of the required technology to use this learning content. Note: the value of this may be derived automatically from 3.1: technical.format eg, video/mpeg implies Multi-OS	Recommended	1	Vocabulary Refer to Technical Requirement vocabulary (as above).
4.4.1.3	Minimum version	Lowest possible version of the required technology to use this learning content.	Recommended	1	CharacterString
4.4.1.4	Maximum version	Highest possible version of the required technology to use this learning content.	Optional	1	CharacterString
4.5	Installation remarks	Description of how to install this learning content.	Optional	1	LangString
4.6	Other platform	Information about	Recommended	1	LangString

Identi-fier	Name	Definition	Obligation	Max occur-rence	Datatype
	requirements	other software and hardware requirements.			
4.7	Duration	Time a continuous piece of learning content takes when played at intended speed. NOTE: This data element is especially useful for sounds, movies or animations.	Optional#	1	Vocabulary [ISO8601] Duration
5	Educational	This category describes key educational or pedagogic characteristics of the learning content.	–	1	–
5.1	Interactivity type	'Predominant mode of learning supported'.	Not recommended	1	Vocabulary
5.2	Learning resource type	This data element is used to identify the kind of the learning content. It is an ordered element; most dominant kind first.	Mandatory	*	Vocabulary [ordered] DCMI Type vocabulary http://dublincore.org/docume nts/dcmi-type-vocabulary 🗗 Use extensions from the vocabulary Australian Learning Resource Type: http://vocabulary.curriculum. edu.au/learningResourceTy pe 🗗 For VET sector, use LOMv1.0 vocabulary 'Learning resource type' plus extensions from the vocabulary VET Educational Use: http://e-standards.flexiblelearning.n et.au/implementation/metad ata/vetadata_vocabularies/e ducational_use.php 🗗
5.3	Interactivity level	'The degree of interactivity characterising this learning object.'	Not recommended		Vocabulary (Enumerated) [LOMv1.0]

Identi-fier	Name	Definition	Obligation	Max occur-rence	Datatype
5.4	Semantic density	'The degree of conciseness of a learning object.'	Not recommended		Vocabulary (Enumerated) [LOMv1.0]
5.5	Intended end user role	An audience group targeted for the learning content.	Recommended	*	Vocabulary [LOMv1.0] learner teacher manager author
5.6	Context	The education or training sector at which the learning content is aimed.	Recommended	*	Vocabulary [unordered] [LOMv1.0] school higher education training other
5.7	Typical age range	Age of the typical intended user.	Recommended #		LangString [unordered] For resources aimed at school students, calculate typical age range directly from properties of [Australian School Level](). The relationship is: age range = (min. user level + 5) to (max. user level + 6). For example, Foundation level (0) has typical age range 5–6.
5.8	Difficulty	'How hard it is to work with or through this learning object for the typical intended target audience.'	Not recommended		Vocabulary
5.9	Typical learning time	'Approximate or typical time it takes to work with or through this learning object for the typical intended audience.'	Not recommended		Duration
5.10	Description	'Comments on how this learning object is to be used.'	Optional		LangString
5.11	Language	'The human language used by the typical	Not recommended		CharacterString [unordered]

Identi-fier	Name	Definition	Obligation	Max occur-rence	Datatype
		intended user of this learning object.'			
6	Rights	This category describes key intellectual property rights and conditions of use for the learning content.		1	–
6.1	Cost	'Whether use of this learning object requires payment.'	Mandatory#	1	Vocabulary [LOMv1.0] yes no
6.2	Copyright and other restrictions	'Whether copyright or other restrictions apply to the use of this learning object.'	Mandatory#	1	Vocabulary [LOMv1.0] yes no
6.3	Description	Text description of rights associated with the learning content.	Mandatory	1	LangString
7	Relation	This category describes the relation of the resource to other resources.	Recommended	*	– [unordered]
7.1	Kind	Kind of relation.	Recommended	1	Vocabulary Extension of LOM v1.0 'kind' vocabulary. Extended values shown in italics. ispartof haspart isversionof hasversion isformatof hasformat references isreferencedby isbasedon isbasisfor requires isrequiredby issiblingof# # This extended value is

Identi-fier	Name	Definition	Obligation	Max occur-rence	Datatype
					adapted from the Gateway to Educational Materials (GEM) element set qualifier v2.0 vocabulary. 'The resource being described is at the same level in some arbitrary hierarchy as the resource being pointed to by this Relation element.'
7.2	Resource	The target learning resource that this relationship references.	–	*	–
7.2.1	Identifier	A globally unique label that identifies the target learning resource.	–	*	–
7.2.1.1	Catalog	The name or designator of the identification or cataloging scheme for this entry. A namespace scheme.	Recommended	1	LangString
7.2.1.2	Entry	The value of the identifier within the identification or cataloging scheme that designates or identifies the target learning resource. A namespace specific string.	Recommended	1	CharacterString
7.2.2	Description	Textual description of the content of the related resource or nature of the relationship.	Optional	1	LangString
8	Annotation	This category provides comments on the educational use of the learning content and information on when and by whom the	–	*	– [unordered]

Identi-fier	Name	Definition	Obligation	Max occur-rence	Datatype
		comments were created.			
8.1	Entity	The person or organisation that created the annotation.	Optional	1	Vocabulary [vCard v3.0]
8.2	Date	Date the annotation was created.	Optional	1	Vocabulary [W3C-DTF] for date
8.3	Description	The content of the annotation.	Optional	1	LangString
9	Classification	This category describes where the learning object falls within a particular classification system. To define multiple classifications, there may be multiple instances of this category. See examples in section 6.0.			–
9.1	Purpose	The purpose of classifying this item.	Mandatory		Vocabulary [LOM v.1.0] discipline idea prerequisite educational objective accessibility restrictions educational level skill level security level competency
9.2	Taxon path	A taxonomic path in a specific classification system. Each succeeding level is a refinement in definition of the preceding level.	–		–

Identi-fier	Name	Definition	Obligation	Max occur-rence	Datatype
9.2.1	Source	The name of the classification system. If possible, select a source that can be de-referenced via a URI.	Mandatory		LangString
9.2.2	Taxon	A particular term within a taxonomy.	–		– [ordered]
9.2.2.1	ID	The identifier of the taxon, such as a number or letter combination provided by the source of the taxonomy. If possible, select an ID that can be de-referenced via a URI.	Recommended		CharacterString
9.2.2.2	Entry	The textual label of the taxon	Recommended		LangString
9.3	Description	Description of the item relative to the stated classification purpose.	Optional		LangString
9.4	Keyword	Keywords and phrases descriptive of the item relative to the stated classification purpose.	Not recommended. Prefer to use 1.5 Keyword.		LangString [ordered]

It is recommended that values for these elements are system maintained. For example, values are automatically assigned within the Metadata Exchange and Sharing Exchange. In some cases, further values may be added or imported to supplement the system-maintained values.

6.0 Examples of applying 'classification' systems

This section sets out examples of commonly assigned classification systems. The tables are grouped by purpose (see element 9.1 in Table 2). Informative notes for each purpose are based on CanCore Guidelines [CanCore].

For each source (9.2.1) either a Taxon ID (9.2.2.1) or Taxon entry (9.2.2.2) must be used. For uncontrolled vocabularies, a Taxon entry is typically used without an identifying system. The case for a Taxon ID without an Taxon entry is less clear but is still regarded as a valid entry.

For each source (9.2.1), the purpose (9.1) must be clearly identified. There are nine purpose options in the LOM v1.0 vocabulary. ANZ-LOM includes examples for discipline; educational objective; idea; competency; educational level and accessibility.

No one purpose or source is mandatory. However, it is recommended in ANZ-LOM that at least one source is selected for discipline and/or educational objective. Also, educational level should not be used unless at least one source with either discipline or educational objective is also used.

Table 3 Examples of applying 'discipline' classifications

- The purpose 'discipline' can be used to classify resources with a branch of instruction or education; a department of learning or knowledge; or a science or art in its educational aspect. It can be used to classify a resource according to its use by disciplinary departments, faculties, or units in an organisation.

- It is recommended that at least one source is represented where the purpose is 'discipline'.

9.2.1 Source	9.2.2.1 Taxon ID	9.2.2.2 Taxon entry	Authority and comment
AGIFT		School education	Describes the business functions carried out across Australian, state and local governments in Australia. ESA's default value is 'School education'. Refer to AGIFT thesaurus: www.naa.gov.au/records-management/publications/agift.aspx 🔗 AGIFT is a three-level taxonomy, and broad/narrower values are sometimes quoted together in records. Such nested entries may be included in the lom:classification by repeating 9.2.2 lom:taxon within the same 9.2 lom:taxonPath. For example: Education and training ➔ School education
ANZSIC	01	Agriculture	For VET items, use industry subdivisions to describe relevant industries or occupations. Refer to the Australian and New Zealand Standard Industrial Classification http://www.abs.gov.au/ausstats/abs@.nsf/mf/1292.0 🔗
ATED		Grade equivalent scores	Describes research and practice terminology in Australian education. http://cunningham.acer.edu.au/multites2007/index.html 🔗

9.2.1 Source	9.2.2.1 Taxon ID	9.2.2.2 Taxon entry	Authority and comment
Australian cross-curriculum priority	http://vocabulary.curriculum.edu.au/crossCurriculum/f7f47140-a85e-498b-9367-0d468082fc2b	Sustainability	Describes national priorities including local, regional or global ones. Refer to http://vocabulary.curriculum.edu.au/crossCurriculum 🖻
Australian Curriculum Framework	http://vocabulary.curriculum.edu.au/framework/M110	Number and algebra	Describes a curriculum framework organised into structural units. Each learning area includes subdivisions such as strands.
DDC	577.3406 WHO a14		Identifies a subject-based 'call number' to classify the learning content. Dewey Decimal Classification http://www.oclc.org/dewey 🖻
scisshl		Biodiversity	Describes the subject of the learning content. Schools Catalogue Information Service (SCIS) subject headings http://www2.curriculum.edu.au/scis/subject_headings.html 🖻
VOCED	t2783	Public speaking	For VET items (including ACE), use VOCED for research policy related resources and for resources not tied to specific nationally accredited training packages. Refer to: http://hdl.voced.edu.au/10707/6073 🖻

Table 4 Examples of applying 'educational objective' classifications

- The purpose 'educational objective' can be used to classify resources with the systematic instruction, schooling or training given to the young in preparation for the work of life; by extension, similar instruction or training obtained in adult age.

- It is recommended that at least one source is represented where the lom:purpose is 'educational objective'.

9.2.1 Source	9.2.2.1 Taxon ID	9.2.2.2 Taxon entry	Authority and comment
Australian Curriculum Content Description	http://www.australiancurriculum.edu.au/Elements/ACELY1667	Rehearse and deliver short presentations on familiar and new topics	Specifies what teachers are expected to teach. Refer to http://www.australiancurriculum.edu.au 🖻
Australian Student Activity	http://vocabulary.curriculum.edu.au/studentActivity/2	Analysis	Describes the nature of the learning activity in which students will engage to help them to develop particular skills, knowledge or values.
Educational value		Explains the methods geologists use to find gold deposits.	Describes the general educational usefulness (value) of the content. Use this element to describe potential classroom value of resources. Otherwise, describe learning activities from a pedagogical perspective. Uncontrolled vocabulary. Refer to 'Objective' section in the Guide to metadata http://ndlrn.edu.au/standards_for_digital_resources/metadata/guid

9.2.1 Source	9.2.2.1 Taxon ID	9.2.2.2 Taxon entry	Authority and comment
			e_to_metadata 🖼
Key learning objective		Students apply knowledge of gold formation to evaluate the resource potential of geographic areas.	The key learning objective is superseded by vocabulary-based classifications: for example, Australian Curriculum Content Description. For uncontrolled free-text entries a source that conforms to a standard or style is preferred: for example, Educational value. Uncontrolled vocabulary.
NSW BOS syllabus outcome	MA2-2WM	Selects and uses appropriate mental or written strategies, or technology, to solve problems	Specifies what NSW students are expected to do within the NSW K–10 syllabus. Refer to: http://www.boardofstudies.nsw.edu.au 🖼

Table 5 Examples of applying 'idea' classifications

- The purpose 'idea' can be used to classify resources using a taxonomic system particular to a domain (for example: Schools Online Thesaurus (ScOT) in schools; MESH in medicine).

- 'Idea' is similar to 'discipline' but may be more abstract and trans-disciplinary. An 'idea' classification may represent intellectual characteristics of the learning content that are relevant across disciplines or curriculum frameworks.

- Note that 'idea' classifications are associated with 'subject classification' according to the Dublin Core Metadata Initiative crosswalk provided in [LOM].

9.2.1 Source	9.2.2.1 Taxon ID	9.2.2.2 Taxon entry	Authority and comment
DCMI period		start=1949; end=1949; scheme= W3C-DTF	Identifies the temporal characteristics (date range) of the intellectual content of the learning content. Method for indicating a time interval is documented at http://www.dublincore.org/documents/dcmi-period 🖼
DCMI point		east=117.582;north =32.372; name= Overheu Nature Reserve	A mechanism for indicating a point in space using its geographic coordinates and representing that information as a value string.. http://www.dublincore.org/documents/dcmi-point/ 🖼 Derive points and official names can be derived from the relevant authorities – for example: Australia: Gazetteer of Australia Place Name Search http://www.ga.gov.au/map/names 🖼 New Zealand: Land Information New Zealand – Place Names www.linz.govt.nz/placenames 🖼 USA: Geographic Names Information System http://geonames.usgs.gov/domestic/ 🖼

9.2.1 Source	9.2.2.1 Taxon ID	9.2.2.2 Taxon entry	Authority and comment
ISO 3166-1	AU	Australia	Identifies spatial characteristics of the intellectual content of the learning content. http://www.iso.org/iso/iso-3166-1_decoding_table.html 🗗
ISO 3166-2	AU-WA	Western Australia	Identifies spatial characteristics of the intellectual content of the learning content. Note that ESA only applies regional values for Australian states and territories.
Schools Online Thesaurus (ScOT)	http://vocabulary.curriculum.edu.au/scot/5367	Dust storms	Describes the concepts that the learning content is about. Refer to http://scot.curriculum.edu.au 🗗

Table 6 Examples of applying 'competency' classifications

- The purpose 'competency' can be used to classify resources by sufficiency of qualification; capacity to deal adequately with a subject.

9.2.1 Source	9.2.2.1 Taxon ID	9.2.2.2 Taxon entry	Authority and comment
Australian Curriculum General Capability	http://vocabulary.curriculum.edu.au/generalCapability/8959ee96-911f-486b-94f4-38304e566bbc	Information and Communication Technology (ICT) capability	Describes general capabilities that schools should help students to develop, in addition to the content of particular learning areas. Refer to: http://vocabulary.curriculum.edu.au/generalCapability 🗗
CGEA	VBM688	Reading and Writing 1	Certificates in General Education for Adults (CGEA) are accredited certificates which allow adults who have not completed secondary education to improve their literacy, numeracy and general education skills. Refer to: http://greymatter.net.au/greymatter/cgea/index 🗗
Teacher career stage	http://vocabulary.curriculum.edu.au/teachercareerstage/62876b10-7a37-4376-a2e5-4b0f8b5cc304	Highly Accomplished	Recommended where 5.5 Intended end user role = 'Teacher'. Describes career stages and the professional growth of teachers throughout their careers.
Unit of competency	RTF2017A	Prune shrubs and small trees	For VET items, use the most specific competency names and codes. Refer to: http://www.training.gov.au 🗗

Table 6 Examples of applying 'educational level' classifications

- The purpose 'educational level' is usually inferable from 'educational objective' and sometimes from 'discipline' classifications.

- The purpose 'educational level' should not be used without 'educational objective' or 'discipline' classifications.

9.2.1 Source	9.2.2.1 Taxon ID	9.2.2.2 Taxon entry	Authority and comment
AQF		Diploma	For VET items and higher education items, apply AQF qualification level wherever relevant. Refer to http://www.aqf.edu.au
Australian School Level	http://vocabulary.curriculum.edu.au/schoolLevel/4	Year 4	'School year' of intended audience. Includes years preceding formal schooling. Note relationship to values in 5.7 Typical age range: min. age = min. user level + 5 max. age = max. user level + 6

Table 7 Examples of applying 'accessibility restrictions' classifications

- The purpose 'accessibility restrictions' can be used to classify resources by the quality of being accessible, or of admitting approach. This purpose is frequently associated with the accommodation of users with special needs or disabilities.

9.2.1 Source	9.2.2.1 Taxon ID	9.2.2.2 Taxon entry	Authority and comment
Australian Access Profile	http://vocabulary.curriculum.edu.au/access/13	Device independence	Describes the accessibility of learning content. An access profile is assigned within the metadata when content has been specifically designed for learning experiences that support the profile.

7.0 References

[Application profiles] Application profiles: mixing and matching metadata schema, Rachel Heery and Manjula Patel. Ariadne Issue 25, September 2000 http://www.ariadne.ac.uk/issue25/app-profiles 🔗

[ATAG] Authoring Tool Accessibility Guidelines 1.0, W3C Recommendation 3 February 2000 http://www.w3.org/TR/ATAG10 🔗

Australian education vocabularies http://vocabulary.curriculum.edu.au 🔗

[CanCore] CanCore Guidelines for the Implementation of Learning Object Metadata (IEEE 1484.12.1-2002) http://cancore.tru.ca/en/guidelines 🔗

[DCMI Box] Dublin Core Metadata Initiative Box Encoding Scheme http://dublincore.org/documents/dcmi-box/ 🔗
Describes a method for identifying a region of space using its geographic limits.

[DCMI Terms] Dublin Core Metadata Initiative Metadata Terms: 14 January 2008 http://dublincore.org/documents/dcmi-terms 🔗

[DCMI Period] Dublin Core Metadata Initiative Period Encoding Scheme http://www.dublincore.org/documents/dcmi-period 🔗
Describes a method of identifying a single time interval using its limits.

[DCMI Point] Dublin Core Metadata Initiative Point Encoding Scheme http://dublincore.org/documents/dcmi-point 🔗
Describes a method of identifying a point in space using it geographic coordinates.

[DCMI Type] Dublin Core Metadata Initiative Type Vocabulary http://dublincore.org/documents/dcmi-type-vocabulary 🔗

[IEEE 1484.12.1-2002] IEEE LOM: Draft Standard for Learning Object Metadata http://ltsc.ieee.org/wg12/files/LOM_1484_12_1_v1_Final_Draft.pdf 🔗
This standard defines a structure for interoperable descriptions of learning content.

[IETF] RFC 2119 Key words for use in RFCs to Indicate Requirement Levels http://www.ietf.org/rfc/rfc2119.txt 🔗

[IMS Content Packaging] IMS Content Packaging Specification Information Model, v1.1.4 http://www.imsproject.org/content/packaging 🔗

[IMS Best practice guide] IMS Global Learning Consortium (2006) IMS Meta-data Best Practice Guide for IEEE 1484.12.1–2002 Standard for Learning Object Metadata. Version 1.3 Final Specification http://www.imsproject.org/metadata/ 🔗

[IMT] Internet Media Types http://www.iana.org/assignments/media-types/ 🔗

[ISO11179] Specification and Standardization of Data Elements, Parts 1–6 http://www.iso.org/iso/search.htm?qt=11179&published=on 🔗

[ISO 3166] ISO (International Organisation for Standardization) Country Names and Code Elements http://www.iso.org/iso/country_codes/iso_3166_code_lists.htm 🔗

[ISO 4217] ISO (International Organisation for Standardization) Currency Names http://www.xe.com/news/2012-02-23%2022:24:00.0/2495277.htm 🔗

[ISO 639] ISO (International Organisation for Standardization) Language Code
http://www.iso.org/iso/search.htm?qt=639&published=on 🔗

[[ISO 8601] ISO (International Organisation for Standardization) Representations of dates and times
http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=40874 🔗

Library Application Profile, DCMI Working Draft
http://dublincore.org/documents/library-application-profile 🔗
This document proposes a possible application profile that clarifies the use of the Dublin Core Metadata Element Set in libraries and library-related applications and projects.

[MARC Relators]: http://id.loc.gov/vocabulary/relators.html 🔗
This is a controlled vocabulary (including codes) for describing contributor roles.

[MIME] Multipurpose Internet Mail Extensions: http://www.oac.uci.edu/indiv/ehood/MIME/MIME.html 🔗
Extends the format of Internet mail to allow non-USASCII textual messages, non-textual messages, multipart message bodies, and non-US-ASCII information in message headers.

[ODRL] Open Digital Rights Language, v1.1: http://www.w3.org/community/odrl/ 🔗
This is a proposal for expression of digital rights management statements and semantic interoperability.

[SA HB 256:2007] Standards Australia: November 2007
http://www.saiglobal.com/shop/script/Details.asp?DocN=AS0733782701AT 🔗
Metadata usage in Australian and New Zealand education and training. This handbook introduces the topic of metadata and documents current practices with particular focus on the Australia and New Zealand environment.

[SCORM] Shareable Content Object Reference Model v1.3 http://www.scormsoft.com/scorm 🔗
This is a collection of standards and specifications adapted from multiple sources to provide a comprehensive suite of e-learning capabilities that enable interoperability, accessibility and reusability of Web-based learning content.

[vCard] http://www.imc.org/pdi/ 🔗
This standard defines how contact details for people and organizations can be represented.

[Vetadata] Australian Flexible Learning Framework (2007) e-standards for training http://e-standards.flexiblelearning.net.au/implementation/metadata/vetadata_examples/ 🔗

[W3C-DTF] W3C Encoding rules for dates and times http://www.w3.org/TR/NOTE-datetime 🔗
A profile based on ISO 8601.