

Data Driven Decisions for Academic Achievement (D3A2) Metadata Standards

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Data Driven Decisions for Academic Achievement

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The D3A2 Metadata Standard v1.0

This document uses EdNA (Education Network Australia) Metadata Standard v1.1 as the template for presentation of the D3A2 Metadata Standard v1.0.

The D3A2 Metadata Standard is based on the internationally recognized Dublin Core Metadata Element Set (DCMES). The D3A2 Metadata Standard v1.0 is the collaborative result of the D3A2 Content Committee and its specifically-designated Metadata Definition Sub-committee together with other committees of D3A2 (Data & Technology, User, Policy, Intellectual Property, and Resource).

The purpose of the D3A2 Metadata Standard is to define the data elements (mandatory, desirable and optional) for content providers to permit entry and use of their content via the D3A2 system. This document supports the following definitions as set forth in the D3A2 Intellectual Property Rights Policy and the D3A2 Content Repository Collection Policy (for Phase 1):

- 2.1 D3A2 metadata record: A metadata record created by content providers to allow use of their content in the D3A2 system, conforming to the definitions and requirements of the D3A2 content repository.
- 2.2 Service Provider: An entity that provides services to the education community based fully or in part on D3A2 metadata or the schemas and application profiles upon which such metadata is based.
- 2.3 D3A2 metadata repository: The aggregation of D3A2 metadata records contributed by content providers.
- 2.4 Metadata distribution: The aggregation of D3A2 metadata records contributed by content providers.

What is metadata as used by the D3A2 Initiative?

For educators, the response includes three key points:

- Metadata is the data that describes a resource so that it can be retrieved accurately.
- Metadata matches the resource to a particular standard, benchmark and/or indicator.
- Metadata allows the system to know the type/function of the resource; for example, lesson plan.

Metadata is structured in a **consistent** and **standard** manner to help facilitate the management, discovery and retrieval of resources from the D3A2 system. It is the current intention of the D3A2 initiative to support a centralized metadata repository to allow access to the described content/resources. The actual content or resource may or may not be aggregated in a central repository at a later stage.

Metadata **standards** allow the creators of resources and managers of resource collections to describe the content/resources in a detailed manner that helps facilitate targeted queries by search engines for users of the D3A2 system. The metadata record will consist of elements as defined in this document comprised of mandatory, desirable and optional elements available from the content provider.

Dublin Core Metadata Initiative

The D3A2 Metadata Standard is based on the Dublin Core Metadata Element Set. The Dublin Core Metadata Initiative (DCMI) is an international collaborative effort to establish and maintain standards for describing Internet resources to enable targeted resource discovery and interoperability of information exchange. Key principles of Dublin Core's metadata standard specification relevant to D3A2 include "simplicity", interoperability", "extensibility" and "refinement".

Educational metadata standards¹

The D3A2 Metadata Standard uses a presentation model based on EdNA. Similar to EdNA, D3A2 extends the scope of description that can be included in a metadata record with information relevant to the educational domain. This is done by defining education-specific elements, element refinements or encoding schemes. For example, D3A2 describes the OSIC (Ohio Standard Identifier Code) as both an education-specific element and an encoding scheme used to refine and auto-generate other metadata elements: standard, content and grade.

The addition of education-specific and Ohio-specific elements and element qualifiers is consistent with the extensibility principles of Dublin Core, helps meet specific requirements applicable to the Ohio education domain and supports the operational requirements of the D3A2 system.

¹ The sections "Dublin Core Metadata Initiative" and "Educational metadata standards" paraphrase EdNA's description of their standard set based on Dublin Core and used as a model to lay the groundwork for the D3A2 Metadata Standard v1.0.

D3A2 educational metadata standard

The D3A2 Metadata Standard uses the elements, refinements and encoding schemes offered by Dublin Core and extends the Dublin Core set to meet specific requirements applicable to the D3A2 system. An example of this is the introduction of the element OSIC, the Ohio Standard Identifier Code. The elements are shown as *x.term* where *x* is the source of the term/element (Dublin Core or D3A2) and *term* is the element, the refinement or the encoding scheme. Examples of each are shown below:

DC.Identifier
D3A2.OSIC

Mandatory metadata elements for D3A2

There are three levels of element “requirement” or status for the inclusion of content/resources in the D3A2 system. The list of **11 required** elements which must be part of the provider’s metadata record is shown below. D3A2.dateEntered and DC.Identifier are metadata fields auto-populated by the D3A2 system.

D3A2.Provider	D3A2.ProviderWebsite	
DC.Title	DC.Abstract**	
DC.Identifier*	DC.URI	
D3A2.dateEntered*		
D3A2.OSIC		
DC.Type	D3A2.Function	D3A2.Format
<p>* System-generated ** Using Dublin Core standard process, DC.Abstract, which is an element refinement of DC.Description, may require the inclusion of DC.Description as required. For Phase 1, DC.Description can be auto-populated by the D3A2 system and default to the value of DC.Abstract if not included by the content provider.</p>		

Desirable metadata elements for D3A2

There are an additional **26 desirable** metadata elements (5 are variations of date) that a content provider may choose to use/populate as applicable in an effort to encourage targeted queries and manage resources. Elements such as DC.Date become more critical as content is modified. A point for discussion is what elements Phase I will display and/or utilize as access points. The expectation is that providers will submit metadata in a prescribed format and any elements existing in the provider's metadata will be part of the metadata provided to D3A2. Any additional metadata not included in the D3A2 Metadata Standard v1.0 will not be recognized and used in the D3A2 system. This allows providers to send their metadata without modification on their part (the same argument would apply to optional elements).

Elements such as DC.Modified can be system-generated to recognize incremental changes in content. Additionally, D3A2.Content, -Grade, -Standard are generated based on the OSIC coding schema. Other elements like DC.Language can offer a default value. For Phase 1, D3A2.Cost must = 0.

D3A2.Standard	D3A2.Content	D3A2.Grade		
D3A2.Extent	D3A2.Medium			
DC.Description**	DC.tableOfContents	DC.Subject	D3A2.Thinking Level	
DC.Audience	DC.Language			
DC.Contributor	DC.Creator	DC.Publisher	DC.Source	DC.Rights
DC.Date	DC.Created	DC.Available	DC.Modified	DC.Issued
DC.Version				
DC.Coverage	DC.Spatial	DC.Temporal		
D3A2.Cost				
**See comment in previous table for mandatory elements.				

Term definitions for the D3A2 Metadata Standard v1.0

Term	Definition
Mandatory	Element/term must be included by the content provider in the metadata record or be system-generated for acceptance into the D3A2 repository.
Desirable	Element/term that can be included in the metadata record and usually is defined as the content provider deems applicable. Provider metadata records including these desirable elements will become part of the D3A2 metadata repository.
Optional	Element/term is additional information in the metadata record to help the user refine/target queries for resources. Provider metadata records including these optional elements will become part of the D3A2 metadata repository.
Element	A main described term in the metadata records with the assigned D3A2 repository status equal to required, desirable, or optional. Elements can be refined or further described by an Element Refinement or qualified by an Encoding Scheme.
Element Refinement	A main element/term is further described and defined for more precise control over the content/resource. For example, DC.Abstract refines the term DC.Description. Element refinements are conforming terms.
Encoding Scheme	A main element/term is further described and defined by use of an encoding scheme. For example, URI (Uniform Resource Identifier) is a standard encoding scheme for DC.Identifier, DC.Source and DC.Relation. Encoding schemes are registered or have been defined as a standard coding scheme used specifically to input values for a metadata element. D3A2.Standard, D3A2.Grade and D3A2.Content are inherently contained in the D3A2.OSIC schema.
Vocabulary Term/Value	Values for encoding schemes are identified and defined. This document includes values for DC.Type, D3A2.Function, D3A2-function_group, D3A2-instructional_component, D3A2-item_source, D3A2-item_type, D3A2-content, D3A2-prof_dev, D3A2.Format, D3A2-format, D3A2-carrier, DC.Audience, D3A2-audience, and D3A2-sector.

Summary table for all described D3A2 metadata elements (alphabetical)

The Summary Table for **all** the considered terms for the D3A2 Metadata Standard v1.0 is shown below in ascending alphabetical order (excluding the source DC and D3A2) together with the “requirement” level of the term. Element refinements and encoding schemes are not coded unless they are *required* fields in the metadata record for content/resource inclusion in the D3A2 system. For example, DC.URI is an encoding scheme for DC.Identifier and is shown to be a required element.

Term	Source	Element	Element Refinement	Refines	Encoding Scheme	Qualifies	Required Level
Abstract	DC		✓	Description			M
accessRights	DC		✓	Rights			O
Alternative	DC		✓	Title			O
Approver	D3A2	✓					O
Audience	DC	✓					D
-audience	D3A2				✓	Audience	
Available	DC		✓	Date			D
bibliographicCitation	DC		✓	Identifier			O
-carrier	D3A2				✓	Format	
Comment	D3A2	✓					O
conformsTo	DC		✓	Relation			O
Content	D3A2		✓	OSIC	✓	OSIC	D
-content	D3A2				✓	-function_group	
Contributor	DC	✓					D
Cost	D3A2	✓					D
Coverage	DC	✓					D
Created	DC		✓	Date			D
Creator	DC	✓					D
Date	DC	✓					D
dateAccepted	DC		✓	Date			O
dateCopyrighted	DC		✓	Date			O
dateEntered	D3A2	✓					M
dateSubmitted	DC		✓	Date			O
DCMIType (Dublin Core Metadata Initiative Type)	DC				✓	Subject	
Description	DC	✓					D
DDC (Dewey Decimal	DC				✓	Subject	

Term	Source	Element	Element Refinement	Refines	Encoding Scheme	Qualifies	Required Level
Classification)							
educationLevel	DC		✓	Audience			O
Extent	D3A2		✓	Format			D
Format	D3A2	✓					M
-format	D3A2				✓	Format	
Function	D3A2	✓					M
-function_group	D3A2				✓	Function	
Grade	D3A2		✓	OSIC	✓	OSIC	D
hasFormat	DC		✓	Relation			O
hasPart	DC		✓	Relation			O
hasVersion	DC		✓	Relation			O
Identifier	DC	✓					M
IMT (Internet Media Type)	DC				✓	Format	
Indexing	D3A2	✓					O
-instructional_component	D3A2				✓	-function_group	
instructionalMethod	DC	✓					O
isFormatOf	DC		✓	Relation			O
ISO3166	DC				✓	Spatial	
ISO639-2	DC				✓	Language	
isPartOf	DC		✓	Relation			O
isReferencedBy	DC		✓	Relation			O
isRequiredBy	DC		✓	Relation			O
isReplacedBy	DC		✓	Relation			O
Issued	DC		✓	Date			D
isVersionOf	DC		✓	Relation			O
-item_source	D3A2				✓	-function_group	
-item_type	D3A2				✓	-function_group	
Language	DC	✓					D
LCC (Library of Congress Classification)	DC				✓	Subject	
LCSH (Library of Congress Subject Headings)	DC				✓	Subject	
license	DC		✓	Rights			O
mediator	DC		✓	Audience			O
Medium	D3A2		✓	Format			D
Modified	DC		✓	Date			D

Term	Source	Element	Element Refinement	Refines	Encoding Scheme	Qualifies	Required Level
OSIC	D3A2	✓					M
Period	DC				✓	Date Temporal	
Point	DC				✓	Spatial	
-prof_dev	D3A2				✓	-function_group	
provenance	DC	✓					O
Provider	D3A2	✓					M
ProviderWebsite	D3A2	✓					M
Publisher	DC	✓					D
References	DC		✓	Relation			O
Relation	DC	✓					O
replaces	DC		✓	Relation			O
requires	DC		✓	Relation			O
Review	D3A2	✓					O
Reviewer	D3A2	✓					O
RFC3066	DC				✓	Language	
Rights	DC	✓					D
rightsHolder	DC	✓					O
-sector	D3A2				✓	Audience	
Spatial	DC		✓	Coverage			D
Source	DC	✓					D
Standard	D3A2		✓	OSIC	✓	OSIC	D
Subject	DC	✓					D
tableOfContents	DC		✓	Description			D
Temporal	DC		✓	Coverage			D
TGN (Getty Thesaurus of Geographic Names)	DC				✓	Spatial	
ThinkingLevel	D3A2	✓					D
Title	DC	✓					M
Type	DC	✓					M
UDC (Universal Decimal Classification)	DC				✓	Subject	
URI (Uniform Resource Identifier)	DC				✓	Identifier Source Relation	M
Valid	DC		✓	Date			O
Version	DC	✓					D
W3CDTF	DC				✓	Date Temporal	

The D3A2 Metadata Standard – Elements²

D3A2.Provider*

Element Name:	Provider
Definition:	An organization that correlates resources to Ohio’s Academic Content Standards or creates them and provides the metadata related to those resources to the D3A2 project. In Phase 1 these resources are provided free of charge.
Comment:	D3A2 or D3A2 content providers reserve all rights with respect to available content, including, without limitation, all rights to copy, display, distribute, transmit, modify, remove or create derivative works of it (taken from the IPR Policy).

D3A2.ProviderWebsite*

Element Name:	ProviderWebsite
Definition:	The referenced website for the identified content provider of the resource.
Comment:	The D3A2 repository could contain a provider profile to handle the sending/formatting of content. The URL for rubrics, home page, etc. for the content provider.

DC.Title*

Element Name:	Title
Definition:	A name given to the resource.
Element Refinement:	DC.Alternative
Element Refinement Definition:	Any form of the title used as a substitute or alternative to the formal title of the resource.
Comment:	This qualifier can include Title abbreviations as well as translations.
Comment:	Typically, a Title will be a name by which the resource is formally known.

² Mandatory elements will be identified with an asterisk in the detail description section of this document.
D3A2 Metadata Standard v1.0 doc v1.83.doc

DC.Description (may be a required element)

Element Name:	Description
Definition:	An account of the content of the resource.
Element Refinement:	DC.tableOfContents
Element Refinement Definition:	A list of submits of the content of the resource.
Element Refinement:	DC.Abstract*
Element Refinement Definition:	A summary of the content of the resource.
Comment:	Description may include but is not limited to: an abstract, table of contents, reference to a graphical representation of content or a free-text account of the content.
D3A2 Comment:	Should be a maximum number of characters. Since Abstract refines Description, Description may need to be a required element; however, the system can auto-populate the field if sent blank with a value equal to Abstract or some designated default value. One or both may be visible.

DC.Identifier*

Element Name:	Identifier
Definition:	Unambiguous reference to the resource in a given context.
Element Refinement:	DC.bibliographicCitation
Element Refinement Definition:	A bibliographic reference for the resource.
Comment:	Recommended practice is to include sufficient bibliographic detail to identify the resource as unambiguously as possible, whether or not the citation is in a standard form.
Encoding Scheme:	DC.URI* – a Uniform Resource Identifier
Comment:	Recommended best practice is to identify the resource by means of a string or number conforming to a formal identification system. Example formal identification systems include the Uniform Resource Identifier (URI) (including the Uniform Resource Locator (URL)), the Digital Object Identifier (DOI) and the International Standard Book Number (ISBN).
D3A2 Additional Comment:	D3A2 system-generated unique key for each metadata record – use for query, extraction and modification purposes.

D3A2.dateEntered*

Element Name:	dateEntered
Definition:	Date item was entered (accepted) into the repository and is assigned a unique identifier (DC.Identifier). No item will be assigned a dateEntered if the current metadata version standards are not met.
Encoding Schemes:	DC.Period - a specification of the limits of a time interval DC.W3CDTF - W3C Encoding rules for dates and times – a profile based on ISO 8601
Comment:	System-generated date field assigned when metadata record is accepted from the content provider.

D3A2.OSIC*

Element Name:	OSIC
Definition:	The Ohio Standardized Identifier Code -or- the decision tree on how to use resources that cross OSIC codes. The XML code that identifies a particular standard, benchmark and/or grade level indicator in the Ohio Academic Content Standards.
Element Refinement:	D3A2.Standard
Element Refinement Definition:	The standard, benchmark or grade level indicator of the resource.
Comment:	Will be derived from the OSIC.
Element Refinement:	D3A2.Content
Element Refinement Definition:	Refers at this level to content area; e.g., ELA, Math.
Comment:	Will be derived from the OSIC.
Element Refinement:	D3A2.Grade
Element Refinement Definition:	The grade level or band of the resource.
Comment:	Will be derived from the OSIC.
Encoding Scheme:	OSIC (Ohio Standard Identifier Code)

DC.Type*

Element Name:	Type
Definition:	The nature or genre of the content of the resource.
Encoding Schemes:	DCMIType
DCMI Type values	Collection, dataset, event, image, interactive resource, moving image, physical object, service, still image, software, sound, text.
Comment:	The Type element allows resources to be described using terms describing general categories, functions, genres or aggregation levels for content. Recommended best practice is to select a value from a controlled vocabulary (for example, the DCMI Type Vocabulary [DCMITYPE]).
Reference:	[DCMITYPE] http://dublincore.org/documents/dcmi-type-vocabulary/

D3A2.Function*

Element Name:	Function
Definition:	A controlled vocabulary term describing the purpose of the resource. One of four function/resource types must be selected from D3A2-function_group.
Encoding Schemes:	D3A2-function_group D3A2-instructional_component D3A2-item_source D3A2-item_type D3A2-content D3A2-prof_dev
D3A2-function_group values	instructional component, assessment item, assessment collection, content, professional development
D3A2-instructional_component values	unit plan, lesson plan, activity, tutorial
D3A2-item_source values	classroom, district/local, State (provided by ODE), national, international
D3A2-item_type values	extended response, selected response (multiple choice, etc.), short answer, performance assessment, writing prompt
D3A2-content values	research results, informational resource, bibliography
D3A2-prof_dev values	educational research, workshop/training, course

D3A2.Format*

Element Name:	Format
Definition:	The physical or digital manifestation of the resource. This is a defined D3A2 element to allow modification of values.
Element Refinement:	D3A2.Extent
Element Refinement Definition:	The size or duration of the resource.
Element Refinement:	D3A2.Medium
Element Refinement Definition:	The material or physical carrier of the resource.
Encoding Schemes:	D3A2-format D3A2-carrier
D3A2-format values	book, article, video, kit, interactive video distance learning, web-based distance learning, software/application, word document, QuickTime movie, windows media player, database, spreadsheet, HTML, PDF, JPEG, GIF, JAVA, Flash, WAV (this list can be expanded)
D3A2-medium values	Internet, VHS, other video tape, DVD, CD-ROM, electronic document, bound document, ATM video, IP video, ISDN video (this list can be expanded)

DC.Subject

Element Name:	Subject
Definition:	The topic of the resource. This is much more specific than the main content area as identified in the OSIC code.
Encoding Schemes:	DC.DDC – Dewey Decimal Classification DC.LCC – Library of Congress Classification DC.LCSH – Library of Congress Subject Headings DC.UDC – Universal Decimal Classification
Comment:	Typically, a Subject will be expressed as keywords, key phrases or classification codes that describe a topic of the resource. Best practice is to select a value from a controlled vocabulary or formal classification scheme.

D3A2.ThinkingLevel

Element Name:	ThinkingLevel
Definition:	The thinking level of the content.
Comment:	Values for Thinking Level have yet to be defined for D3A2.

DC.Audience

Element Name:	Audience
Definition:	A class of entity for whom the resource is intended or useful.
Element Refinement:	DC.educationLevel
Element Refinement Definition:	A general statement describing the education or training context. Alternatively, a more specific statement of the location of the audience in terms of its progression through an education or training context.
Encoding Schemes:	D3A2-audience D3A2-sector
D3A2-audience values	teacher, administrator, student, parent/career, community member
D3A2-sector values	pre-K-12 education, higher education, vocational education and training, adult and community education
Element Refinement:	DC.mediator
Element Refinement Definition:	A class of entity that mediates access to the resource and for whom the resource is intended to be useful.
Comment:	The audiences for a resource are of two basic classes: (1) an ultimate beneficiary of the resource, and (2) frequently, an entity that mediates access to the resource. The mediator element refinement represents the second of these two classes.
Comment:	A class of entity may be determined by the creator or the publisher or by a third party.

DC.Language

Element Name:	Language
Definition:	A language of the intellectual content of the resource.
Encoding Schemes:	DC.ISO639-2 – codes for the representation of names of languages DC.RFC3066 - ‘Tags for the Identification of Languages’ specifies a primary sub tag which is a two-letter code taken from ISO 639 part 1 or a three-letter code taken from ISO 639 part 2, followed optionally by a two-letter country code taken from ISO 3166. When a language in ISO 639 has both a two-letter and three-letter code, use the two-letter code; when it has only a three-letter code, use the three-letter code. This RFC replaces RFC 1766.
Comment:	Recommended best practice is to use RFC 3066 [RFC3066], which, in conjunction with ISO 639 [ISO630] defines two- and three-letter primary language tags with optional sub tags. Examples include “en” or “eng” for English, “akk” for Akkadian, and “en-GB” for English used in the United Kingdom.
D3A2 Additional Comment:	English could be the system-generated default value.

DC.Contributor

Element Name:	Contributor
Definition:	An entity responsible for making contributions to the content of the resource.
Comment:	Examples of a Contributor include a person, an organization, or a service. Typically the name of a Contributor should be used to indicate the entity. A person or organization not specified in a Creator element who has made significant intellectual contributions to the resource but whose contribution is secondary to any person or organization specified in a Creator element (for example, editor, transcriber and illustrator). Where there is a co-author, this person should be included as a repeatable DC.Creator element. Personal names should be listed surname or family name first, followed by forename or given name. The preferred separator is a comma.
D3A2 Additional Comment:	MARC allows for the identification of the person or agency primarily responsible and for other contributors such as joint authors, illustrators, etc. Essentially, anyone of significance related to the creation of the item.

DC.Creator

Element Name:	Creator
Definition:	An entity primarily responsible for making/developing the content of the resource.
Comment:	Examples of a Creator include a person, an organization, or a service. Typically, the name of a Creator should be used to indicate the entity. An entry containing an email address is highly desirable. Additional information can be included by repeating the element. For resources where users are likely to be searching by Author (e.g., articles and research reports), an element value with the full name is desirable. For example, authors in the case of written documents, artists, photographers, or illustrators in the case of visual resources. Personal names should be listed surname or family name first, followed by forename or given name. The preferred separator is a comma. When in doubt, give the name as it appears, and do not invert.

DC.Publisher

Element Name:	Publisher
Definition:	An entity responsible for making the resource available.
Comment:	Examples of a Publisher include a person, an organization, or a service. Typically, the name of a Publisher should be used to indicate the entity.
D3A2 Additional Comment:	MARC allows for the identification of the person or agency primarily responsible and for other contributors such as joint authors, illustrators.

DC.Source

Element Name:	Source
Definition:	A reference to a resource from which the present resource is derived.
Encoding Scheme:	DC.URI* – a Uniform Resource Locator
Comment:	The present resource may be derived from the Source resource in whole or in part. Recommended best practice is to reference the resource by means of a string or number conforming to a formal identification system.

DC.Rights

Element Name:	Rights
Definition:	Information about rights held in and over the resource.
Element Refinement:	DC.accessRights
Element Refinement Definition:	Information about who can access the resource or an indication of its security status.
Comment:	Access Rights may include information regarding access or restrictions based on privacy, security or other regulations.
Element Refinement:	DC.license
Element Refinement Definition:	A legal document giving official permission to do something with the resource.
Comment:	Recommended best practice is to identify the license using a URI. Examples of such licenses can be found at http://creativecommons.org/licenses/ .
Comment:	Typically, a Rights element will contain a rights management statement for the resource, or reference a service providing such information. Rights information often encompasses Intellectual Property Rights (IPR), Copyright, and various Property Rights. If the Rights element is absent, no assumptions can be made about the status of these and other rights with respect to the resource.
Additional D3A2 Comment:	Link to a website or document detailing use rights of the resource. See also element D3A2.ProviderWebsite.

DC.Date

Element Name:	Date
Definition:	A date associated with an event in the life cycle of the resource.
Element Refinement:	DC.Created
Element Refinement Definition:	Date of creation of the resource.
Element Refinement:	DC.Valid
Element Refinement Definition:	Date (often a range) of validity of a resource.
D3A2 Comment:	For example, a video whose rights expire at a given time.
Element Refinement:	DC.Available
Element Refinement Definition:	Date (often a range) that the resource will become or did become available.
D3A2 Comment:	For example, distance learning and professional development resources that are scheduled.
Element Refinement:	DC.Modified (repeatable element)
Element Refinement Definition:	Date on which the resource was changed.
Element Refinement:	DC.dateAccepted
Element Refinement Definition:	Date of acceptance of the resource (e.g., of thesis by university department, of article by journal, etc.).
Comment:	System-generated date field.
Element Refinement:	DC.dateCopyrighted
Element Refinement Definition:	Date of a statement of copyright.
Element Refinement:	DC.dateSubmitted
Element Refinement Definition:	Date of submission of the resource (e.g., thesis, articles, etc.)
Element Refinement:	DC.Issued
Element Refinement Definition:	Date of formal issuance (e.g., publication) of the resource.
Encoding Schemes:	DC.Period - a specification of the limits of a time interval DC.W3CDTF - W3C Encoding rules for dates and times – a profile based on ISO 8601
Comment:	Typically, Date will be associated with the creation or availability of the resource. Recommended best practice for encoding the date value is defined in a profile of ISO 8601 [W3CDTF] and follows the YYYY-MM-DD format. In encoding the date, where the exact date is not known then just the year and month, or just the year is acceptable. The preferred format for encoding the date is Year: YYYY (e.g., 1997); Year and month: YY-MM (e.g., 1997-07); Complete date: YYYY-MM-DD (e.g., 1997-07-16). Date Valid may be used to indicate the estimated duration that a third party resource should remain in an online education collection, such as the D3A2 system.

D3A2.Version

Element Name:	Version
Definition:	Version of the D3A2 Metadata Standard applied.
Comment:	For administration tracking purposes it is recommended best practice to include this information. The D3A2 system can auto-populate this element based on the current version of the D3A2 Metadata Standard in place on the D3A2.dateEntered.

DC.Coverage

Element Name:	Coverage
Definition:	The extent or scope of the content of the resource.
Element Refinement:	DC.Spatial
Element Refinement Definition:	Space characteristics of the intellectual content of the resource.
Encoding Schemes:	DC.ISO3166 – codes for the representation of names of countries DC.Point – the DCMI Point identifies a point in space using its geographic coordinates DC.TGN – the Getty Thesaurus of Geographic Names
Element Refinement:	DC.Temporal
Element Refinement Definition:	Time characteristics of the intellectual content of the resource.
Encoding Schemes:	DC.Period – a specification of the limits of a time interval DC.W3CDTF – encoding rules for dates and times with profile based on ISO 8601
Comment:	Coverage will typically include spatial location (a place name or geographic coordinates), temporal period (a period label, date, or date range) or jurisdiction (such as a named administrative entity). Recommended best practice is to select a value from a controlled vocabulary (for example, the Thesaurus of Geographic Names [TGNI] and that, where appropriate, named places or time periods be used in preference to numeric identifiers such as sets of coordinates or date ranges.
D3A2 Additional Comment:	Time coverage might be used to give start and finish dates for particular resource types such as professional development.

D3A2.Cost

Element Name:	Cost
Definition:	Any costs associated with the use of the resource; e.g., purchase of content, license to use, and shipping.
Comment:	All of the content available through the system (D3A2) must be free as a condition of being part of Phase One. In subsequent phases, other types of materials may be available. Content available through D3A2 is intended for widespread non-profit educational use. Any other usage must be cleared through individual providers.

DC.rightsHolder

Element Name:	rightsHolder
Definition:	A person or organization owning or managing rights over the resource.
Comment:	Recommended best practice is to use the URI or name of the Rights Holder to indicate the entity. See also D3A2.ProviderWebsite.

DC.provenance

Element Name:	provenance
Definition:	A statement of any changes in ownership and custody of the resource since its creation that is significant for its authenticity, integrity and interpretation.
Comment:	The statement may include a description of any changes successive custodians made to the resource.

DC.instructionalMethod

Element Name:	instructionalMethod
Definition:	A process, used to engender knowledge, attitudes and skills, that the resource is designed to support.
Comment:	Instructional Method will typically include ways of presenting instructional materials or conducting instructional activities, patterns of learner-to-learner and learner-to-instructor interactions, and mechanisms by which group and individual levels of learning are measured. Instructional methods include all aspects of the instruction and learning processes from planning and implementation through evaluation and feedback.

DC.Relation

Element Name:	Relation
Definition:	A reference to a related resource.
Element Refinement:	DC.conformsTo
Element Refinement Definition:	A reference to an established standard to which the resource conforms.
Element Refinement:	DC. isVersionOf
Element Refinement Definition:	The described resource is a version, edition, or adaptation of the referenced resource. Changes in version imply substantive changes in content rather than differences in format.
Element Refinement:	DC. hasVersion
Element Refinement Definition:	The described resource has a version, edition, or adaptation, namely, the referenced resource.
Element Refinement:	DC. isReplacedBy
Element Refinement Definition:	The described resource is supplanted, displaces, or superseded by the referenced resource.
Element Refinement:	DC. replaces
Element Refinement Definition:	The described resource supplants, displaces, or supersedes the referenced resource.
Element Refinement:	DC. isRequiredBy
Element Refinement Definition:	The described resource is required by the referenced resource, either physically or logically.
Element Refinement:	DC. requires
Element Refinement Definition:	The described resource requires the referenced resource to support its function, delivery, or coherence of content.
Element Refinement:	DC. isPartOf
Element Refinement Definition:	The described resource is a physical or logical part of the referenced resource.
Element Refinement:	DC. hasPart
Element Refinement Definition:	The described resource includes the reference resource either physically or logically.
Element Refinement:	DC. isReferencedBy
Element Refinement Definition:	The described resource is referenced, cited, or otherwise pointed to by the referenced resource.
Element Refinement:	DC. References
Element Refinement Definition:	The described resource references, cites, or otherwise points to the referenced resource.
Element Refinement:	DC.isFormatOf
Element Refinement Definition:	The described resource is the same intellectual content of the referenced resource, but presented in another format.
Element Refinement:	DC.hasFormat
Element Refinement Definition:	The described resource pre-existed the referenced resource, which is essentially the same intellectual content presented in another format.
Encoding Scheme:	DC.URI* – a Uniform Resource Locator
Comment:	Recommended best practice is to reference the resource by means of a string or number conforming to a formal identification system.

D3A2.Indexing

Element Name:	Indexing
Definition:	Parameter which identifies the extent to which the software should follow hyperlinks from the described page.
Comment:	This may be the responsibility of the user interface; e.g., DASL, eSIS, ORC, INFOhio, SchoolNet, or other IMS.

D3A2.Approver

Element Name:	Approver
Definition:	E-mail of person or organization approving the item for inclusion in the D3A2 system.
Comment:	This may be the responsibility of the user interface; e.g., DASL, eSIS, ORC, INFOhio, SchoolNet, or other IMS.

D3A2.Review

Element Name:	Review
Definition:	Third party commentary or formal review of the resource.

D3A2.Reviewer

Element Name:	Reviewer
Definition:	Name of person and/or organization or authority affiliated with the review.

D3A2.Comment

Element Name:	Comment
Definition:	Short evaluative comment.
Comment:	Users are provided the ability to comment on a resource and the application could aggregate comments into rating - nature of the comments and what the follow-up activity is.

D3A2 System Encoding Schemes

This section of the document presents the values for the encoding schemes and their definitions.

Values for DC.Type

DCMI Type

Values for D3A2.Function

D3A2-function_group

D3A2-instructional_component

D3A2-item_source

D3A2-item_type

D3A2-content

D3A2-prof_dev

Values for D3A2.Format

D3A2-format

D3A2-carrier

Values for DC.Audience

D3A2-audience

D3A2-sector

Values for DC.Type (DCMI Type)

DC.Collection	A collection is an aggregation of items. The term collection means that the resource is described as a group; its parts may be separately described and navigated.
DC.Dataset	A dataset is information encoded in a defined structure (for example, lists, tables, and databases), intended to be useful for direct machine processing.
DC.Event	An event is a non-persistent, time-based occurrence. Metadata for an event provides descriptive information that is the basis for discovery of the purpose, location, duration, responsible agents, and links to related events and resources. The resource of type event may not be retrievable if the described instantiation has expired or is yet to occur. Examples – exhibition, web-cast, conference, workshop, open-day, performance, battle, trial, wedding, tea-party, conflagration.
DC.Image	An image is a primarily symbolic visual representation other than text. For example – images and photographs of physical objects, paintings, prints, drawings, other images and graphics, animations and moving pictures, film, diagrams, maps, musical notation. Note than image may include both electronic and physical representations.
DC.InteractiveResource	An interactive resource is a resource which requires interaction from the user to be understood, executed, or experienced. For example – forms on web pages, applets, multimedia learning objects, chat services, virtual reality.
DC.MovingImage	A series of visual representations that, when shown in succession, impart an impression of motion. Examples of moving images are: animations, movies, television programs, videos, zoetropes, or visual output from a simulation. Comment: Instances of the type ‘Moving Image’ must also be describable as instances of the broader type ‘Image’.
DC.PhysicalObject	An inanimate three-dimensional object or substance. For example – a computer, the great pyramid, a sculpture. Note that digital representations of, or surrogates for, these things should use Image, Text or one of the other types.
DC.Service	A service is a system that provides one or more functions of value to the end-user. Examples include: a photocopying service, a banking service, an authentication service, interlibrary loans, a Z39.50 or Web server.
DC.StillImage	A static visual representation. Examples of still images are: paintings, drawings, graphic designs, plans and maps. Comment: Recommended best practice is to assign the type ‘text’ to images of textual materials. Instances of the type ‘Still Image’ must also be describable as instances of the broader type ‘Image’.
DC.Software	Software is a computer program in source or compiled form which may be available for installation non-transiently on another machine. For software which exists only to create an interactive environment, use interactive instead.
DC.Sound	A sound is a resource whose content is primarily intended to be rendered as audio. For example – a music playback file format, an audio compact disc, and recorded speech or sounds.
DC.Text	A text is a resource whose content is primarily words for reading. For example – books, letters, dissertations, poems, newspapers, articles, archives of mailing lists. Note that facsimiles or images of texts are still of the genre text.

Values for D3A2.Function (D3A2-function_group)

Instructional Component	
Assessment Item	
Assessment Collection	A group of items that can be used together to assess the same standard, benchmark or indicator.
Content	
Professional Development	Continuing education materials or events.

Values for D3A2.Function (D3A2-instructional_component)

Unit Plan	A series of lesson plans built around a theme related to the Academic Content Standards.
Lesson Plan	Instructional strategy that provide information on how the skills and knowledge of the Academic Content Standards may be taught to students so that they can demonstrate the skills or knowledge consistently. These may be taught over the course of more than one class period.
Activity	Instructional strategy that engage students in the practice of the knowledge and skills found in the Academic Content Standards but do not actually provide basic instruction.
Tutorial	

Values for D3A2.Function/Assessment Item (D3A2-item_source)

Classroom	
District/Local	
State/ODE	
National	
International	

Values for D3A2.Function/Assessment Item (D3A2-item_type)

Extended Response	Extended response items require students to demonstrate understanding in depth by providing responses that may include explanations, appropriate charts, tables, graphs or other graphic organizers.
Selected Response	Assessment items in which a student is given answer choices and must make a selection.
Short Answer	Items that require a brief written response.
Performance Assessment	An activity or product that students complete in order to demonstrate learning.
Writing Prompt	Assessment items that direct students to write a response that is scored using a rubric based on the writing standards in English Language Arts.

Values for D3A2.Function (D3A2-content)

Research Results	
Informational Resource	
Bibliography	

Values for D3A2.Function (D3A2-prof_dev)

Educational Research	
Workshop/Training	Professional development classes available face-to-face, online or a combination that provides information that teachers may use to improve their practice.
Course	A series of classes available online, face-to-face, or a blend of both over the course of a quarter or semester that grants college or university credit.

Values for D3A2.Function (D3A2-format)

Book	
Article	
Video	
Kit	
Interactive Video Distance Learning	
Web-Based Distance Learning	
Software Application	
Word Document	
QuickTime Movie	
Windows Media Player	
Database	
Spreadsheet	
HTML	
PDF	
JPEG	
GIF	
JAVA	
Flash	
WAV	

Values for D3A2.Function (D3A2-carrier)

Internet	
VHS	
Other Video Tape	
DVD	
CD-ROM	
Electronic Document	
Bound Document	
ATM Video	
IP Video	
ISDN Video	

Values for DC.Audience (D3A2-audience)

Teacher	
Administrator	
Student	
Parent/Career	
Community Member	

Values for DC.Audience (D3A2-sector)

PreK-12 Education	
Higher Education	
Vocational Education/Training	
Adult/Community Education	