

## Ethnomathematics Digital Library Metadata Tagging Manual Version 5/6/03

### Metadata Tagging Scheme Using Dublin Core Plus DC Educational Extensions

#### Steps:

New items: Add in online EDL Resource List with a \* before the record number.

Cataloged items: Use a ^ to substitute for the \*.

Reviewed items: Remove ^, except if there is a ### note, in which case replace ^ with #.

Element	Required Field	Qualifiers	Scheme	Description	Basis of selection	Searchable Field	Display to Public	Role
<b>1. Title</b>	Yes		AACR2 if uniform title needed	Name given to the resource as it appears on website	Title page of document or heading from website	Adv. Quick	Yes	PREL: Tom Ross AAS: Megan Rogers
<b>2. Creator</b>	No	Personal or corporate name	No authority control. <i>Personal</i> : complete name as appears in items; <i>Corporate</i> : Full name with acronym in parentheses. Use AACR2 if needed	Person, organization, or service responsible for intellectual content of resource (for example, author)	Title page of document or name identified from website (may be found on webpages other than those comprising the document)	Adv.	Yes	ENC cataloger: Lin Zhang QC: Janet Kahkonen Smith
<b>3. Subject</b>	Yes	None	PREL taxonomy, based on NSDL mathematics taxonomy and ENC headings	The topic of the content of the resource	Terms chosen from printed hierarchical taxonomy (see section 3) and selected from alphabetical menu.	Adv. Quick	Yes	ENC math specialist: Judy Spicer
<b>4. Description</b>	Yes	None	None	Annotation of 60 to 100 words describing the content and	Created by cataloger based on content of document	Adv. Quick	Yes	ENC math specialist: Judy Spicer

				potential usage of resource. Other substantive terms and number of references listed				
<b>5. Publisher</b>	Yes	Personal or corporate name	As per Creator	Person, corporation, or other organization responsible for making the resource available on the Web	Title page of document, homepage of website	Adv.	Yes	ENC cataloger: Lin Zhang QC: Janet Kahkonen Smith
<b>6. Contributor</b>	No	Contributor role (see section 6)	As per Creator	Up to 3 persons or organizations (other than Creator and Publisher) that have made significant contributions to the resource	As specified in resource. Role chosen from alphabetical dropdown menu	Adv.	Yes	ENC cataloger: Lin Zhang QC: Janet Kahkonen Smith
<b>7. Date</b>	No	Date type: Content create date, Content on Web, EDL entry date, EDL modify date, and final review date.	ISO 8601 (W3C Date and Time Formats)	Dates associated with life cycle of resource, including original creation of content, availability on Web, and entry and review of metadata	YYYY supplied by cataloger for first two items; EDL entry, modify and review dates supplied automatically	Adv.	Yes	ENC cataloger: Lin Zhang QC: Janet Kahkonen Smith
<b>8. Type</b>	Yes	None	Taxonomy developed by PREL	Nature or genre of the content of the resource	One or more chosen from scroll-down menu	Adv.	Yes	ENC math specialist: Judy Spicer
<b>9. Format (of electronic)</b>	Yes		PREL-wide standard based on MIME	The physical or digital	Chosen from alphabetical scroll-	No	Yes	ENC cataloger: Lin Zhang

manifestation of document)				representation of the resource	down menu			QC: Janet Kahkonen Smith
<b>10. Identifier</b>	Yes	None	None	Unambiguous reference to the resource within a given context using a string or number conforming to a formal identification system	URL. If the resource exists in more than one version, each should become a separate record.	No	Yes	PREL: Tom Ross AAS: Megan Rogers
<b>11. Source</b>	No	None	No specific style. Does not repeat creator or title if these are identical to Creator and Title fields	Bibliographic description of another resource from which the present resource is derived	From original website or readily available information.	No	Yes	ENC cataloger: Lin Zhang QC: Janet Kahkonen Smith
<b>12. Language</b>	Yes	None	ANSI/NISO Z39.53 – 2001, <i>Codes for the Representation of Languages for Information Interchange</i> [ <a href="http://www.niso.org/standards/standard_detail.cfm?std_id=707">http://www.niso.org/standards/standard_detail.cfm?std_id=707</a> ]	The language(s) of the intellectual content of the resource; and the language of the country that the material is about if mathematical terms in that language are used in the resource	Chosen from dropdown menu of languages used; others can be added from database table	No	Yes	ENC cataloger: Lin Zhang QC: Janet Kahkonen Smith
<b>13. Relation</b>	No		None	A related resource on the Web, and its relationship to the resource	NOT IN USE AT PRESENT	Not in use	Not in use	
<b>14. Coverage</b>	No	14a. Geographic area	PREL alphabetical headings list, with reference to ISO 3166-1 <a href="http://www.din.de/gre">http://www.din.de/gre</a>	The extent or scope of the content of the resource, including geographic area	Geographic area and cultural group selected from alphabetical headings lists,	Adv. Quick	Yes	ENC cataloger: Lin Zhang QC: Janet Kahkonen Smith

		14b. Cultural group	mien/nas/nabd/iso3166ma/codlstp1/en_listp1.html and <i>Getty Thesaurus of Geographic Names (TGN)</i> [www.getty.edu/research/tools/vocabulary/tgn/index.html]  PREL alphabetical headings list, with reference to the indexes of <i>Encyclopedia of World Cultures</i> and <i>Encyclopedia of the Peoples of the World</i>	and cultural group (includes race, nationality, ethnicity, tribe, etc.)	supplemented by the sources indicated			
<b>15. Rights</b>	No	None	None	Information about rights held in and over the resource	Input by cataloger as indicated on Web	No	Yes	ENC cataloger: Lin Zhang QC: Janet Kahkonen Smith
<b>16. Audience (DC-ED)</b>	Yes	None	Headings list developed by PREL	Category of user for whom the resource is intended	Chosen from dropdown menu	Adv.	Yes	ENC math specialist: Judy Spicer
<b>17. Standard (DC-ED)</b>	No	Standards	Developed by PREL	Education or training standard with which the resource is associated	Chosen from dropdown menu	No	Yes	ENC math specialist: Judy Spicer
<b>18. Interactivity Type (DC-ED)</b>	No		IEEE LOM	Flow of interaction between the end user and the resource	NOT IN USE AT PRESENT. Use ### in notes field	Not in use	Not in use	ENC math specialist: Judy Spicer
<b>19. Interactivity</b>	No		IEEE LOM	Degree of interactivity	NOT IN USE AT PRESENT	Not in use	Not in use	ENC math specialist:

<b>Level (DC-ED)</b>				between the resource and the intended user	Use ### in notes field			Judy Spicer
<b>20. Typical Learning Time (DC-ED)</b>	No		IEEE LOM	Approximate or typical time it takes to work with the resource	NOT IN USE AT PRESENT Use ### in notes field	Not in use	Not in use	ENC math specialist: Judy Spicer
<b>21. Notes</b>	Yes			Include Rationale for Selection, Cataloger, Reviewer, and Links. Further changes should be indicated by ###	In put by cataloger and reviewer	No	No	Rationale, Reviewer, Links: PREL  Cataloger: ENC math specialist, cataloger  ###: Any of above

## 1. Title

Use the title given to the resource by the Creator or Publisher. Capitalize the first letter of the title and proper nouns only. If the title starts with A, An or The (or their equivalents in a foreign language), delete these.

***Recurring column titles:*** Include volume, issue numbers and dates. (for example, record number 060: Have you seen (ISGEM Newsletter, Volume 7, Number 2, May 1992)). Include Members Projects.

***Subtitle:*** Include a subtitle following a colon, if appropriate. Do not capitalize the word after the colon unless it is a proper noun.

***Other languages:*** If a title is both in English and another language, use the English title followed by the alternative title in parentheses (even if the other language appears first on the title page).

***Acronyms:*** If there are acronyms in the title, leave as is, but spell out in the description.

## 2. Creator

The Creator is the person, organization, or part of an organization responsible for the intellectual content of the resource. For print publications, this is generally the author. Enter either a person or an organization, but not both.

**Multiple Creators:** If there are multiple Creators, use the first name that appears for Creator, and include the others in Contributor as Joint creator.

**Personal names:** For personal names, enter as complete a name as appears in the item (including complete middle name, rather than initial, if this is given). Do not attempt authority control at this stage.

**Organization names:** For organization names, enter full name with acronym in parentheses – for example, Pacific Resources for Education and Learning (PREL). For sections or divisions of an organization that are the Creator, use the rules as set out in *Anglo American Cataloging Rules*, 2nd edition revised (*AACR2*).

### 3. Subject

Subjects are the mathematical, cultural, and instructional terms that describe the resource. Select each of these three types of terms, if applicable, using the hierarchical taxonomy below. Enter the terms using the alphabetical scroll-down list.

**Specificity:** Use the most specific terms; do **not** use repetitive broader terms. For example, for a resource about ‘Socialization into Mainstream Culture’ found in the hierarchical taxonomy under ‘Cultural Context>Perspectives on Mathematics’, do not include the additional terms ‘Cultural Context’ or ‘Perspectives on Mathematics’.

**Scope notes:** Keep notes on decisions made about how various terms are applied, and email them to Nancy Lane (lanen@prel.org). These notes will be used to annotate the taxonomy, so that catalogers can use the terms consistently.

**New terms:** In case new terms need to be added, please refer them to the Principal Investigator, Nancy Lane (lanen@prel.org), who will decide on their appropriateness. She will forward the change to Gretchen, and Gretchen will change the hierarchical taxonomy (below) and forward the decision to Paul Neely, who will make the changes in the alphabetical scroll-down list. **NO ONE BUT PAUL SHOULD MAKE CHANGES TO THE SUBJECT TAXONOMY FOR THE TIME BEING.** After Paul is finished, Gretchen will inform ENC.

### Taxonomy

Numbers in square brackets indicate the equivalent NSDL Mathematics Taxonomy topic. '[ENC]' indicates that the topic related to 'cultural content' and 'instructional issues' is taken from the Eisenhower National Clearinghouse for Mathematics and Science Education thesaurus.

Cultural groups and geographic regions are not included in the subject taxonomy, as they are listed in separate subject lists. See section 14. Coverage.

- Numbers and computation** [1.0]
  - Number concepts [1.1]
    - Natural numbers [1.1.1]
      - Number systems
      - Symbols
      - Words
      - Counting
    - Rational numbers [1.1.3]
      - Number systems
      - Symbols
    - Famous numbers [1.1.8]
      - Zero [1.1.8.1]
      - Pi [1.1.8.2]
      - Golden Mean [1.1.8.5]
  - Numerical terminology [1.1.9]

- Bases, numerical [1.1.10]
- Arithmetic [1.2]
  - Operations [whole numbers] [1.2.1]
    - Addition of whole numbers [1.2.1.1]
    - Subtraction of whole numbers [1.2.1.2]
    - Multiplication of whole numbers [1.2.1.3]
    - Division of whole numbers [1.2.1.4]
    - Estimation of whole numbers [1.2.1.9]
  - Fractions [1.2.2]
    - Addition of fractions [1.2.2.1]
    - Subtraction of fractions [1.2.2.2]
    - Multiplication of fractions [1.2.2.3]
    - Division of fractions [1.2.2.4]
    - Ratio and proportion of fractions [1.2.2.5]
  - Comparison of numbers [1.2.4]
  - Body parts used for counting [1.2.5]
- Patterns and sequences [1.3]
  - Number patterns [1.3.1]
  - Fibonacci sequence [1.3.2]
  - Arithmetic sequence [1.3.3]
  - Geometric sequence [1.3.4]
- Measurement [1.4]
  - Units of measurement [1.4.1]
    - Metric System [1.4.1.1]
    - Standard units [1.4.1.2]
    - Nonstandard units [1.4.1.5]
  - Linear measure [1.4.2]
    - Distance [1.4.2.1]
    - Circumference [1.4.2.2]
    - Perimeter [1.4.2.3]
  - Area [1.4.3]
    - Area of polygons [1.4.3.1]
    - Area of circles [1.4.3.2]
    - Surface area [1.4.3.3]
    - Area of nonstandard shapes [1.4.3.4]
  - Volume [1.4.4]
  - Weight and mass [1.4.5]
  - Temperature [1.4.6]
  - Time [1.4.7]
    - Calendar development
  - Speed [1.4.8]
  - Money [1.4.9]
  - Scale [1.4.10]
  - Size, concepts [1.4.11]
- Logic and Foundations [2.0]**
- Geometry and topology [5.0]**

- Plane geometry [5.2]
  - Measurement [5.2.1]
  - Lines and planes [5.2.2]
  - Angles [5.2.3]
  - Triangles [5.2.4]
    - Properties [5.2.4.1]
    - Congruence [5.2.4.2]
    - Similarity [5.2.4.3]
    - Pythagorean Theorem [5.2.4.4]
  - Polygons [5.2.5]
  - Circles [5.2.6]
  - Patterns [5.2.7]
    - Geometric patterns [5.2.7.1]
    - Tilings and tessellations [5.2.7.2]
    - Symmetry [5.2.7.3]
  - Transformations [5.2.8]
    - Translation [5.2.8.1]
    - Rotation [5.2.8.2]
    - Reflection [5.2.8.3]
    - Scaling [5.2.8.4]
  - Solid geometry [5.3]
    - Spheres [5.3.2]
    - Cones [5.3.3]
    - Cylinders [5.3.4]
    - Pyramids [5.3.5]
    - Prisms [5.3.6]
    - Polyhedra [5.3.7]
  - Fractal geometry [5.10]
- Statistics and probability** [9.0]
  - Data [9.1]
    - Data collection [9.1.1]
    - Data representation [9.1.2]
  - Statistics [9.2]
  - Probability [9.3]
- Applied mathematics** [10.0]
  - Mathematical physics [10.1]
    - Astronomy
    - Navigation
  - Mathematical economics [10.2]
    - Taxes
    - Land ownership
  - Mathematical biology [10.3]
    - Agriculture
    - Medicine and healing
  - Mathematics for business [10.4]
    - Trade and barter

- Engineering mathematics [10.5]
  - Architecture and building
  - Planning (including reconstructed archaeological sites)
  - Civil engineering works
  - Design and construction of canoes and sailing vessels
  - Design and construction of household items
- Mathematical sociology [10.6]
  - Kinship relationships
  - Religious practices
- Mathematics for social sciences [10.7]
  - Games and toys
  - Gambling/games of chance
  - Sports (including scoring)
- Mathematics for humanities [10.9]
  - Decorative arts and design
    - Basketry
    - Beading
    - Clothing design
    - Embroidery
    - Hairstyles
    - Jewelry
    - Knitting
    - Quilting
    - Sewing
    - Sona
    - Tattooing, body painting, and body adornment
    - Weaving
  - Music [10.10]
    - Chants and chanting
    - Dance
    - Musical instruments
    - Songs and singing
- Spatial concepts [10.11]
- Acculturation and mathematical concepts [10.12]
- Mathematical tools and devices**
  - Abacus
  - Calculator
  - Cañar counter
  - Khipu (quipu)
  - Quahuitl
- Mathematics history** [11.0]
  - General [11.1]
  - Comparative [11.2]
  - Biographies of mathematicians [11.3]
- Cultural context**
  - Cultural awareness [ENC]

Cultural diversity [ENC]  
 Popular mathematical practices (Street math)  
 Women's role in mathematics  
 Environmental factors  
 Influence of culture on learning mathematics  
 Influence of culture on teaching mathematics  
 Culturally based instruction  
 Multicultural approaches to teaching [ENC]  
 Cultural perspectives on mathematics  
 Euro-centrism  
 Socialization into mainstream culture  
 Standard versus non-standard mathematics  
 Kinship relationships  
 Linguistical/language context  
 Political Implications

### **Instructional issues**

Achievement [ENC]  
 At-risk students [ENC]  
 Attitudes [ENC]  
 Classificatory ability  
 Curriculum [ENC]  
 Curriculum design [ENC]  
 Educational research [ENC]  
 ESL [ENC]  
 Hands-on learning [ENC]  
 Instructional materials [ENC]  
 Learning environment [ENC]  
 Learning styles [ENC]  
 Learning theory [ENC]  
 Mathematical ability [ENC]  
 Mathematical anxiety [ENC]  
 Mathematical language  
 Minority students  
 Parent involvement [ENC]  
 Questioning [ENC]  
 Reform [ENC]  
 Spatial ability [ENC]  
 Student projects [ENC]  
 Teaching methods [ENC]  
 Writing [ENC]

## 4. Description

Describe the content of the resource concisely in 75 to 125 words (maximum allowed is approximately 150), including as many substantive content words as possible to aid users doing a quick search. (The Title, Description, Subject, and Coverage fields are included in the quick search). Use the informative rather than the indicative abstract style. Avoid passive voice, if possible.

**Other terms:** If there are other significant words that are not included either in the description or as subjects, geographic areas or cultural groups, use the heading ‘Other terms:’, and list these words with commas separating them. End with a period.

**References:** Indicate the number of references, in numerals, at the end in parentheses, using no other punctuation – for example: (Includes 10 references). If there are distinct types of references, these can be included – for example: (Includes 52 references and web links). If there are useful appendices, glossaries, etc., they can also be noted – for example: (Include glossary).

**Style:** Use the *PREL Style Guide* as the authority for spelling and punctuation [<http://www.prel.org/communications/Editing/StyleGuide.asp>]. Note in particular: website, webpage, but the Web (in reference to the World Wide Web).

*Examples:*

### **Young Seminoles and Natural Math**

Natural Math is a two-year research project with children and families of the Oklahoma Seminole Nation Head Start program. The project was built around National Council of Teachers of Mathematics (NCTM) Standards combined with cultural activities and math skills. Children who participated in the project scored higher on kindergarten entrance screening. Other terms: At risk, social mores, museum, dancing, singing, measurement, estimation, problem solving, geometry, spatial awareness, shapes, calendar, computers, ABC Inventory, siblings. (Includes 9 references)

### **Ethnomathematics and its place in the history and pedagogy of mathematics**

This paper discusses some basic issues between the historical approach to the teaching of mathematics and cultural anthropology. Ethnomathematics contradicts the universality of mathematics by describing mathematical practices (counting, ordering, sorting, measuring) carried out in ways that differ radically from those commonly taught in schools. Effective mathematics education in third world countries will require curriculum development as well as investigative and research methods in ethnomathematics. Other terms: Greeks, Plato, Egyptian, geometry, practical mathematics, scholarly mathematics, individual behavior, societal behavior, mentifacts, culture. (Includes 16 references)

### **Khipus, or quipocamayos, a unique Huarochiri legacy**

This website describes how Andean peoples have kept records on knotted cords of cotton or alpaca wool. Called khipus in Quechua, they were used by the Inkas to record censuses, inventories, tribute records, and transactions. They are also referred to as quipocamayos, quipos, or caytus.

Most use an Inka system for numerical recording deciphered by Leland Locke in the 1920s. It is a decimal system, although there is no explicit symbol for zero. The site contains numerous photos and diagrams to explain how khipus record information. Other terms: knots, pendant cords, base 10 positional system.

## 5. Publisher

The Publisher is the person, corporation, or other organization responsible for making the resource available on the Web, NOT the original print publisher. Follow the rules as indicated for Creator (see section 2), including giving the acronym in parentheses.

***Original print publisher:*** Use the Source metadata tag (see section 11) to indicate the original print publisher.

## 6. Contributor

Contributors are the persons or organizations, other than Creator (see section 2) and Publisher (see section 5) that have made significant contributions to the resource.

Contributor List is taken from MARC Code List: Relator Codes from the Library of Congress website at: <http://www.loc.gov/marc/relators/relaterm.html>. If new contributors need to be added refer to this list and contact Nancy Lane at [lanen@prel.org](mailto:lanen@prel.org).

**Priority of selection:** You may select up to three contributors. Prefer, in order of importance: creators, publishers, compilers, editors, translators, illustrators, photographers, and designers. For person and organization names, follow the same rules as for Creator.

**Role qualifiers:** Select the appropriate Role qualifier for each contributor from the dropdown list. Use the role as indicated in the resource; if none is specified, select the closest match based on the definitions below:

- *Compiler:* “1. One who produces a collection by selecting and putting together matter from the works of various persons or bodies. 2. One who selects and puts together in one publication matter from the works of one person or body.” (*AACR2*, rev., p. 617). Generally apply this role to compilers of directories, bibliographies, or similar work.
- *Creator:* One who is responsible for the intellectual or artistic content of a work.
- *Designer:* One responsible for providing the visual or graphic ‘look’ of the resource. Prefer Illustrator for the person who supplies the pictures.
- *Editor:* “One who prepares for publication an item not his or her own. The editorial work may be limited to the preparation of the item for the manufacturer, or it may include supervision of the manufacturing, revision (restitution), or elucidation of the content of the item, and the addition of an introduction, notes, and other critical matter. In some cases, it may involve the technical direction of a staff of persons engaged in creating or compiling the content of the item.” (*AACR2*, rev., p. 617). Generally apply this role to collected works.
- *Illustrator:* Creator of drawings, cartoons, diagrams or other graphic materials used in the resource.
- *Photographer:* One who is responsible for taking photographs, whether they are used in their original form or as reproductions.
- *Publisher:* One who is responsible for making the resource available in print form.
- *Translator:* “One who renders from one language into another, or from an older form of a language into the modern form, more or less closely following the original.” (*AACR2*, rev., p. 624).

## 7. Date

Indicate the dates below if they are known. If they cannot be found, leave blank. Do not guess.

- *Content Create Date:* Use the year when the original resource was created. If more than one version is available (e.g., as a paper in a conference proceedings and a journal article), use the date of whichever version appears on the website. If this information is not available on the website, spend no more than 10 minutes doing some extra searching through online indexes or catalogs to ascertain this information.

Enter the full date for the original source (including year and month/season for journals; year, month, and day for reports and newspapers) as part of the bibliographic description in Source (see section 11).

- *Content on Web:* Use the year when the resource was posted on the Web. This may or may not be easy to ascertain. If there is a range of copyright dates (e.g., copyright 1996-2000), assume the first date is the date the content was originally posted. Do not spend time searching for such information if it is not readily available.

The following dates are record maintenance dates generated automatically by the system:

- *EDL Entry Date:* Date when the resource was first entered into the EDL database.
- *EDL Last Modified:* Date when the resource was most recently modified. Records are not kept for each time the entry is modified – only the last time.
- *Reviewed:* Date when the resource was reviewed and approved.

## 8. Type

Type indicates the nature or genre of the content of the resource. Select **all** the terms that apply from the list (see below), which appears as a scroll-down list.

Types are taken from the Dublin Core type list located at: <http://dublincore.org/documents/dcmi-type-vocabulary/>.

### List

- Collection
- Dataset
- Event
- Image
- Interactive Resource
- Physical Object
- Service
- Software
- Sound
- Text

### Teaching Resource:

If the resource includes any of the following it should be considered a teaching resource and the radio button next to the YES should be selected. If the resource does not include any of the mentioned items then the radio button next to the NO should be selected. (NO is the default). If the resource is a teaching resource, teachers should also be selected from the audience list (with other audience groups as necessary).

#### Teaching Resource examples:

- Course outlines
- Curriculum materials
- Student project examples
- Instructions for or descriptions of classroom activities (including student outcomes)
- Lesson plans
- Suggestions for developing student activities from daily life or practical work (for example knitting socks, weaving, or carpet laying)
- Worksheets or other activities for students

## 9. Format

The format is the physical or digital representation of the resource. It is based on the MIME type. Select the appropriate format term from the scroll-down list, which also appears in the headings list below.

*New terms:* If new formats need to be added, please contact the Principal Investigator, Nancy Lane (lanen@prel.org), who will add the additional MIME type to the list.

### Headings list

Adobe PDF  
Flash File  
GIF Image  
HTML Text  
JPEG Image  
Microsoft Excel  
Microsoft PowerPoint  
Microsoft Word  
Plain Text  
XML Text  
Zip File

## 10. Identifier

Use the URL of the Web resource as the unique identifier.

***Multiple versions:*** If there is more than one version of the site – for example, HTML and PDF, or English and Spanish – each should be a separate record.

## 11. Source

The source is the original, usually print-based work from which the resource is derived. Indicate the original source using free text. Do not include the author and title of the original source if they are identical to the information in the Title and Creator metadata tags (see sections 1 and 2).

Specific styles are not necessary. Include whatever information is readily available. Do not spend time searching for information.

If the publication is based on an earlier version, include as much information as possible about the earlier version in Rights (see section 15).

## 12. Language

Indicate the language in which the resource is written. In most cases this will be English. However, if there are significant mathematical terms in other languages (for example, numbers, shapes, spatial relationships), also include these languages.

***New terms:*** Select the language terms from the scroll-down list, or use the administrator screen to add new languages to the list. The languages on the administrator screen are taken from ANSI/NISO Z39.53 –2001, *Codes for the Representation of Languages for Information Interchange* [[http://www.niso.org/standards/standard\\_detail.cfm?std\\_id=707](http://www.niso.org/standards/standard_detail.cfm?std_id=707)]

## 13. Relation

AT THIS STAGE, WE ARE NOT USING RELATION, OTHER THAN THAT WHICH DESCRIBES THE SOURCE (SECTION 11). HOWEVER, STANDARDS (SEE SECTION 17) WILL BE ADDED SOON AS QUALIFIER.

Relation Qualifiers, Definitions, and Examples

Derived from *Dublin Core Qualifiers*, [dublincore.org/documents/dcmes-qualifiers](http://dublincore.org/documents/dcmes-qualifiers), 2002-02-28

Qualifiers	Definition	Example
IsVersionOf	A version, edition, or adaptation of the referenced resource with substantive changes in content (not differences in format)	New edition
HasVersion	Reciprocal of above	Original edition
IsReplacedBy	Resource is supplanted, displaced, or superseded by the referenced resource	
Replaces	Reciprocal of above	
IsRequiredBy	Resource is required by the referenced resource, either physically or logically	
Requires	Resource requires the referenced resource to support its function, delivery, or coherence of content. Reciprocal of above	
IsPartOf	Resource is a physical or logical part of the referenced resource	Work in an anthology; conference paper in a proceedings
HasPart	Reciprocal of above	Anthology or conference proceedings
IsReferencedBy	Resource is cited or pointed to by the referenced resource	
References	Reciprocal of above	
IsFormatOf	Resource is the same intellectual content of the referenced resource, but presented in another format	Image rendered by a data set
HasFormat	Resource pre-existed the format above	Data set
IsBasedOn	***Addition to DCQ?: Cited on p. 27 in <a href="http://bridges.state.mn.us/bestprac/training.pdf">bridges.state.mn.us/bestprac/training.pdf</a>	Translation
IsBasisFor	***Addition to DCQ?: Cited on p. 27 in <a href="http://bridges.state.mn.us/bestprac/training.pdf">bridges.state.mn.us/bestprac/training.pdf</a> . Reciprocal of above	Resource in language of origin

## 14a. Coverage: Geographic Area

The Geographic area terms indicate the locations covered by the resource. Use the most specific term that applies; do not include broader terms as well. However, use a state or province rather than a particular city, if the item is relevant only to a particular city. Include the name of the city in the description or listed in ‘Other terms’. Select appropriate terms from the alphabetical scroll-down list.

**Multiple terms:** Use the control key to select more than one term. If resources only refer to historical places in passing (e.g., early Greek or Egyptian mathematics), do not include under coverage, but use these terms as ‘Other terms’ in description.

**New terms:** If new terms need to be added, first check the recommended schemes. For existing countries, use the form of the name as indicated in the ISO 3166-1 list (official short names in English) at [http://www.din.de/gremien/nas/nabd/iso3166ma/codlstp1/en\\_listp1.html](http://www.din.de/gremien/nas/nabd/iso3166ma/codlstp1/en_listp1.html). For other regions, use *Getty Thesaurus of Geographic Names (TGN)* [<http://www.getty.edu/research/tools/vocabulary/tgn/index.html>].

For regions or states within a country, include the country in parentheses. For regions that cross several countries, include the continent in parentheses. Do not include terms such as ‘Commonwealth of’, ‘People’s Republic of’, or ‘Republic of’ that precede the place name.

If the number of names of former countries increases, we may want to purchase ISO 3166-3, which gives the names of former countries. It is not available free online, but can be ordered from [http://www.beuth.de/www\\_snv/owa/bwr\\_recherche.find\\_artikel?p\\_sprache=EN&p\\_par3=3166,IS](http://www.beuth.de/www_snv/owa/bwr_recherche.find_artikel?p_sprache=EN&p_par3=3166,IS)

### Headings List

Use the Browse function or refer to Resource Administration page for the current list:  
<http://ethnomath.prel.ws/Admin/ResourceAdmin/index.asp>

## 14b. Coverage: Cultural Groups

The Cultural group terms include ethnic groups covered by the resource. Select appropriate terms from the scroll-down list. Use the control key to select more than one term.

*New terms:* If new terms need to be added, consult the indexes of *Encyclopedia of World Cultures* and *Encyclopedia of the Peoples of the World* for guidance. Select the one that appears to be most common, and include synonymous terms in parentheses (for example, Bhutanese (Bhote)).

For indigenous groups, indicate their broader identity and geographic location (for example, Native American – Colombia and Bolivia).

## Headings List

Use the Browse function or refer to Resource Administration page for the current list:  
<http://ethnomath.prel.ws/Admin/ResourceAdmin/index.asp>

## 15. Rights

Rights covers information about copyright, photo credits, photo permissions, etc., held by owners of the resource. Include the name of the copyright owner and use the exact wording found on the website and give all information available – for example, ‘Copyright XXXX. All rights reserved’. To ascertain the rights may require reference to ‘Usage’ or ‘Copyright’ pages accessible from the website home page.

**Earlier works:** If the resource is based on an earlier publication, include as much information about the earlier publication as possible to assist with queries about copyright ownership.

**Ownership uncertain:** If publication information is given but it is unclear who holds the rights leave it blank.

## 16. Audience

The audience is the targeted readers of the resource. Select all the appropriate terms from the list that apply. Use the control key to select more than one term.

If item is considered a teaching resource, be sure to include teachers in the audience selection.

Headings List:

Researchers  
Teachers  
Students  
Public/Others

### 16a. Teaching Resource

Resources will be considered teaching resources when it includes items that are available for use in a classroom setting.

If an item is considered a teaching resource, click on the radio button next to “yes”. If it is not a teaching resource, click on the radio button next to “no”.

Teaching Resource List:

Lesson plans  
Games  
Hands-on Activities  
Web hunts  
Math problems  
Worksheets  
Miscellaneous items

## 17. Standard

Indicate any established education or training standard to which the resource is associated. Give the full name of the organization publishing the standard (with acronym in parentheses), the name of the standard, and the year of publication in parentheses.

### Headings List:

National Council of Teachers of Mathematics (NCTM) Curriculum and Education Standards (1989)

## 18. Interactivity Type

To be added. Please make a note in Notes following ### if resource will need updating.

## 19. Interactivity Level

To be added. Please make a note in Notes following ### if resource will need updating.

## 20. Typical Learning Time

To be added. Please make a note in Notes following ### if resource will need updating.

## 21a. Notes

**Rationale for selection:** Acceptable criteria for inclusion of the resource are listed below. Generally speaking, do not include any items needing to be purchased.

- Published in peer reviewed journal
- On ENC website
- In ERIC Clearinghouse
- In ISGEm newsletter
- In AMU CHMA newsletter
- Thesis or paper accepted by university
- Paper appears in conference proceedings
- Paper or poster session accepted for conference
- Related to the Pacific (particularly resources covering navigation, kinship, healing, decorative arts, and other cultural activities)
- On recognized professional association website
- On reputable non-profit educational organization website
- By or about experts in ethnomathematics, including all those on EDL Advisors Panel
- Early ethnographic records collected by missionaries, anthropologists, etc.
- Website that has won awards from recognized bodies, such as professional associations, major computing magazines, or Britannica Online
- Example of student projects, particularly for honors or other high-achieving students
- Collection of ethnomathematics resources or web links
- On educational institution website
- Project sponsored by an NSF grant

### **Cataloger:**

Use initials. Include math specialists involved in writing annotation and assigning subject terms, if different from cataloger.

### **Reviewer:**

Use initials. Include only when the item has been ticked as having been reviewed.

### **Links:**

Indicate when permission was requested for deep linking.

### **###:**

Use three hashes to indicate anything that still needs to be corrected or changed – e.g., if new subject terms are to be added.

## 21b. ISGEm Book Reviews

If the book review is substantive (5-6 paragraphs or more) treat the book review as a separate resource.

**Title:** If the book review has a title use that, otherwise use the name of the book being reviewed and include “(book review)” after title. (For example, record number 026: Learning, Aboriginal World View, and Ethnomathematics (book review)).

**Creator:** If name of the reviewer is mentioned use this as Creator. Use Author of book being reviewed as Joint Creator. If there is no reviewer mentioned use the editor of that particular issue of *ISGEm Newsletter*. For example, see record 026.

**Description:** Start description with “This book review”.