

# Selection Criteria associated with Educational Content included in the ESIP-hosted Data Management Training Clearinghouse

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**Definition:** “*Educational resources*” are considered to be *downloadable or interactive digital assets that can be used as teaching, learning, and assessing resources as well as for educational research purposes.*

(Adapted from [https://en.wikipedia.org/wiki/Open\\_educational\\_resources](https://en.wikipedia.org/wiki/Open_educational_resources).)

**Scope:** Educational resources on research and data lifecycle topics related to science, technical, engineering and medicine (STEM) research and application. Static web pages that describe, explain or define concepts, best practices or other information that would be included as a reference or resource for a downloadable educational resource are not included in the scope of educational resources collected within the DMTC.\_

**Specific criteria to be considered beyond topic:** 1) Learning resource type; 2) Format (media type); 3) Target audiences; 4) Subject discipline covered; 5) Uniqueness of topic coverage.

1. **Learning resource type:** (Adapted from the controlled vocabulary of the DCMI maintained LRMI Metadata Scheme.)

**Most commonly used:**

- Educator Curriculum Guide – resource that defines what concepts should be taught and/or how the concept should be taught effectively. Usually includes Learning objectives, desired outcomes, level of knowledge needed or required, target audience(s) expectations for pre-requisite knowledge, level of instruction and other contextual information. Has been used for course syllabi.
- Course – series of units and lessons used to teach specific skills and knowledge that may be associated with a broader curriculum.

- Unit – longer range plan of instruction on a particular concept containing multiple, related lessons. If possible, descriptively linked to a broader course or curriculum.
- Lesson - detailed description of an element of instruction in a course, (could be) contained in a unit of one or more lessons. May be used by an instructor to guide class instruction. Example: Presentation slides on a topic. If possible, descriptively linked to broader unit or course.
- Demonstration / Simulation - imitation or modeling of a real-world process. Applied to tutorials on tools used or processing done within the research data lifecycle.
- Learning Activity - guided or unguided activity engaged in by a learner to acquire skills, concepts or knowledge that may or may not be defined by a lesson. Examples: data “recipes”, data exercises or other hands-on activities.
- Images / Visuals – Standalone representation of a concept used to instruct visually including but not limited to pictures, graphics, diagrams, figures, illustrations, charts, and maps.

**Available, but rarely used:**

- Text – body of a printed work, to include reading passages.
- Primary source – artifact, document, recording or other source of information created at the time under study and provides first-hand testimony or direct evidence concerning a topic under investigation.
- Textbook – digital book used as a standard source of information on a particular subject.
- Assessment – evaluation, measurement and documentation of the skills or knowledge gained from instruction.
  - Alternate assessment – used to evaluate the performance of students who are unable to participate in general assessment even with accommodations.
  - Assessment item – specific part of an assessment that, when answered by a learner, is used to determine whether a learning objective has been achieved.
  - Formative assessment – process used during instruction to adjust ongoing teaching and learning activities and to improve students’ achievements of intended instructional outcomes.
  - Interim / Summative assessment – instrument used to evaluate student learning at the end of an instructional unit by comparing it against some standard or benchmark.
  - Self-assessment – in which a user gathers information about and reflects on his or her own knowledge, skills, learning or attitudes.
- Rubric Scoring Guide – document or guide used to delineate consistent criteria for grading.

## 2. Format (Media Type): (Taken from the Controlled Vocabulary of the DCMI maintained LRMI Metadata Scheme)

### Most commonly used:

- Collection - a group or set of items that comprise a single learning resource, e.g., downloadable slides from a presentation, a PDF version of the slide presentation, an audio file of the presentation and a textual representation of the oral transcription of the presentation.
- Event - time-based happening that is portrayed or covered by the learning resource, e.g., a webinar.
- Dataset - collection of information organized in logical record and block structures for use by a computer.
- Interactive Resource - requires a user to take action or make a request in order for the content to be understood, executed or experienced.
- Moving Image - explains a concept or tells a story by using sound plus a sequence of visual images that give the illusion of continuous movement, e.g., movie.
- Presentation - representation of the particular way in which an author shows, describes or explains one or more concepts.  
Example: a set of Powerpoint slides.
- Software - programs used to direct the operation of a computer and related devices.
- Sound - an explanation of a concept or a story using audio means within the acoustic range available to humans, and differentiated from audio visual resources, i.e., audio only.
- Static Image - a single visual representation that does not change. Example: a poster explicating a concept.
- Text - an explanation of a concept or a story using human readable characters formed into words, usually distinguished from graphical images.

**Available, but not or rarely used:**

- Animation - a method of making a series of drawings, computer graphics or photographs appear to move.
- Artifact - physical object produced at some point in the past that attests to a given set of practices, and ways of viewing a concept.
- Service - self-contained unit of functionality that enables operations or capabilities, e.g., searching for instruction or training resources on data management.
- Physical object - entity that has a physical presence in the present, as opposed to an artifact (a physical object) of the past.

**3. Target Audiences:**

- Research Faculty
- Research Scientist
- Mid-career research scientist
- Early-career research scientist
- Graduate Student
- Undergraduate Student
- High school student
- Middle school student
- Data supporter
- Data manager
- Librarian
- Educator
- Repository manager
- Data professional
- Data policymaker
- Publisher
- Technology expert group
- Funding organization
- Citizen scientist

- Other

**4. Subject Discipline covered: (Source: RDA Education Interest Group compilation)**

- Education: Science and Mathematics Education
- Engineering
- Engineering: Aerospace Engineering
- Engineering: Biomedical Engineering and Bioengineering
- Engineering: Bioresource and Agricultural Engineering
- Engineering: Chemical
- Engineering: Civil and Environmental Engineering
- Engineering: Computational Engineering
- Engineering: Computer Engineering
- Engineering: Electrical and Computer Engineering
- Engineering: Engineering Education
- Engineering: Engineering Science and Materials
- Engineering: Materials Science and Engineering
- Engineering: Mechanical Engineering
- Engineering: Mining Engineering
- Engineering: Nanoscience and Nanotechnology
- Engineering: Nuclear Engineering
- Engineering: Operations Research, Systems Engineering and Industrial Engineering
- Engineering: Risk Analysis
- Life Sciences: Agriculture
- Life Sciences: Genetics and Genomics
- Life Sciences: Microbiology
- Life Sciences: Nutrition
- Medicine and Health Sciences
- Medicine and Health Sciences: Biomedical Science
- Physical Sciences and Mathematics
- Physical Sciences and Mathematics: Applied Mathematics

- Physical Sciences and Mathematics: Astrophysics and Astronomy
- Physical Sciences and Mathematics: Chemistry
- Physical Sciences and Mathematics: Computer Sciences
- Physical Sciences and Mathematics: Earth Sciences
- Physical Sciences and Mathematics: Environmental Sciences
- Physical Sciences and Mathematics: Mathematics
- Physical Sciences and Mathematics: Oceanography and Atmospheric Sciences and Meteorology
- Physical Sciences and Mathematics: Physics
- Physical Sciences and Mathematics: Statistics and Probability
- Social and Behavioral Sciences
- Social and Behavioral Sciences: Agriculture and Resource Economics

## 5. Uniqueness of topic coverage:

Other factors should be considered when deciding whether to publish information about an educational resource in the DMTC may include the uniqueness of extent, range, approach and coverage of a topic, and the authority or expertise of the authors and/or publishers of the resource.

## Examples of Edge Cases for discussion:

From WDS Resource Guide:

- World Glacier Monitoring Service, Zurich
  - <http://wgms.ch/projects/>
  - Issue: are schools for training researchers, but no apparent mention of data management per se; could be considered part of research life cycle; step for gathering or analyzing data for this particular domain. Seems out of scope due to lack of specific discussion of data management w/in course materials. Also only PDFs of slides and/or outlines.
- The Royal Society of New Zealand
  - <https://drive.google.com/a/icsu-wds.org/file/d/0ByyGtY4J2IcadjRtd1U2QlpWdjq/view?usp=sharing> (need permission to access)

- Issue: Useful paper that could be included in a course bibliography or resource list course syllabus, but not a training resource per se. So, out of scope.
  - Digital Preservation and Nuclear Disaster: An Animation
    - <https://www.data.cam.ac.uk/data-management-guide/looking-after-and-sharing-your-data>
    - Issue: entertaining but range of suitability limited (i.e., high school students and undergraduates?)
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