Only Treats, No Tricks with the New LTI Resource Search
SAFARI Montage is a K-12 Learning Object Repository that allows users to search:

- Locally hosted licensed resources
- District created/curated content
- Content licensed by the district from third party educational publishers [HMH, Pearson, etc.]
- Live federated search of web-hosted digital resource databases directly from the interface.
SAFARI Montage - LTI Resource Search

- Implementing federated searches has presented challenges due to proprietary APIs and search result formats.
- LTI Resource Search removes those barriers by offering a standardized approach to both the search request and the search results.
- An LTI Resource result can be added to a playlist in SAFARI Montage as an LTI link along with content from other sources from the LOR search, allowing the user to aggregate content across providers with authorized links to the source.
LTI Resource Search offers us the ability to easily include new learning object providers in our search interface.
A consumer platform can query an LTI Resource Search service provider via calls to the “resources” REST endpoint.

For example, this is the call to OpenEd to search for resources aligned to a specific CASE standard.

https://partner.opened.com/ims/rs/v1p0/resources?limit=10&offset=0&filter=learningObjectives.ca selItemGUID='31648352-12A7-11E8-827E-0242AC120005'&sort=name&orderBy=asc

This the call to OpenEd to search for resources with the keyword “triangle” in the title, description or subject fields for ages 4-10 published after 1-1-2017.

https://partner.opened.com/ims/rs/v1p0/resources?limit=10&offset=0&filter=search~'triangle' AND typicalAgeRange='4-10' AND publishDate='2017-01-01'&sort=name&orderBy=asc&fields=name,description,author,ltiLink,typicalAgeRange,publisher,learningObjectives,learningResourceType,educationalAudience,thumbnailUrl,url,publishDate
The LTI Resource Search service provider returns a JSON payload with the results.

1. **Case Item GUID:** 3ff81861-80f3-4a68-91e5-7489dbf83fa3,
   **Case Item URL:** http://frameworks.act.gov/ims/case/v1p0/CFItems/3ff81861-80f3-4a68-91e5-7489dbf83fa3,
   **Alignment Type:** teaches,
   **Target Name:** H.A.MATH.GM.PF.P.L.1.2,
   **Target Description:** "Distinguish between the perimeter and area measures."

2. **Case Item GUID:** 8546c402-e191-4c3f-a0c2-26be3af1a4f2,
   **Case Item URL:** http://frameworks.act.gov/ims/case/v1p0/CFItems/8546c402-e191-4c3f-a0c2-26be3af1a4f2,
   **Alignment Type:** teaches,
   **Target Name:** H.A.MATH.GM.PF.P.L.1.4,
   **Target Description:** "Understand that the perimeter of a plane figure can be calculated by adding the lengths of its sides."

3. **Case Item GUID:** 03b8da29-335c-4a36-b2f3-e410fdce137d,
   **Case Item URL:** http://frameworks.act.gov/ims/case/v1p0/CFItems/03b8da29-335c-4a36-b2f3-e410fdce137d,
   **Alignment Type:** teaches,
   **Target Name:** H.A.MATH.GM.PF.P.L.1.10,
   **Target Description:** "Calculate the perimeter of a plane figure given a diagram with dimensions marked."

**Learning Resource Type:** Interactive/Simulation

**Typical Age Range:** 9-13

**Publish Date:** 2017-05-18T12:07:41.101Z

**Author:**

**Thumbnail URL:** https://images.opened.com/pictures/9243265/thumb_large/image20170518-4-1thtgg2.png?1495109264

**Educational Audience:** Student

**Lti Link:**

- **Title:**
  - **Launch URL:** https://www.opened.com/resources/9243265?oauth_access_token=4f482945ca71847d7fc49bff8887f6d332a10b5586ec7e5cf8d4ef4f2b66ff5
  - **Description:**
  - **Extension:**
  - **Secure Launch URL:**
  - **Icon:**
  - **Secure Icon:**
  - **Vendor:**
    - **Code:** NULL
    - **Name:** OpenEd
  - **Cartridge Icon:**
    - **Name:** NULL
    - **Resource URL:** NULL
  - **Cartridge Bundle:**
    - **Name:** NULL
    - **Resource URL:** NULL

**URL:** https://www.opened.com/resources/9243265
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Basic Search

**15.2 Inequalities in a Triangle (Lesson)**
- Media: URL Video
- Type: Media/Video
- Grades: 7 to 9

**15.2 Inequalities in a Triangle (Practice)**
- Media: URL Video
- Type: Media/Video
- Grades: 7 to 9

**18 - Properties of Isosceles Triangles**
- Media: URL Video
- Type: Media/Video
- Grades: 7 to 9
Search With Grade Ranges

2003 AIME II problem 7 | AIME | Math for fun and glory | Khan Academy
MEDIA: URL Video
TYPE: Media/Video
GRADES: 2 to 7

20x20 grid triangle perimeter and area
MEDIA: URL
TYPE: Interactive/Simulation
GRADES: Pre-K to 3

24 - Parallel and Perpendicular Triangles
MEDIA: URL Video
TYPE: Media/Video
GRADES: Pre-K to 3

Area of rhombus from circumradii of triangles. All Khan Academy content is available for free at www.khanacademy.org

This is a video lecture course on Introduction to Geometry.
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Search By CASE Standard

There are 463 Georgia standards for this selection within Common Core State Standards for Math.

- Standards for Math Content (Grades K-8)
  - Grade 1 (Grade 1)
  - Grade 2 (Grade 2)
  - Grade 3 (Grade 3)
  - Grade 4 (Grade 4)
  - Grade 5 (Grade 5)
  - Grade 6 (Grade 6)
  - Grade 7 (Grade 7)
  - Grade 8 (Grade 8)
- Expressions & Equations (Grade 8)
- Functions (Grade 8)
- Geometry (Grade 8)
  - 8.G.A: Understand congruence and similarity using physical models, transparencies, or geometry software. (Grade 8)
    - 8.G.A.1: Verify experimentally the properties of rotations, reflections, and translations. (Grade 8)
      - 8.G.A.1.a: Lines are taken to lines, and line segments to line segments of the same length. (Grade 8)
    - 8.G.A.1.b: Angles are taken to angles of the same measure. (Grade 8)
    - 8.G.A.1.c: Parallel lines are taken to parallel lines. (Grade 8)
  - 8.G.A.2: Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them. (Grade 8)
  - 8.G.A.3: Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates. (Grade 8)
  - 8.G.A.4: Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them. (Grade 8)
  - 8.G.A.5: Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transformed triangles why this is so. (Grade 8)
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Search By CASE Standard

6B Rigid Transformations
MEDIA: URL Video
TYPE: Media/Video
GRADES: 7 to 8

Video reviews the transformations and uses many examples to show that transformed figures are congruent to the original image.

8.G.1.a Lines & Segments to Lines & Segments
MEDIA: URL
TYPE: Assessment/Formative
GRADES: 3 to 8

A tutorial showing how to draw rays and lines from several examples.

Geometry - Rays and lines.
MEDIA: URL Video
TYPE: Media/Video
GRADES: 3 to 4
## Additional Search Fields

The list of permitted terms for `data_field` is given in Table 3.1:

<table>
<thead>
<tr>
<th>Term</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>search</td>
<td>Normalized String</td>
<td>This is a special term that requires the associated filter term to be applied to the 'name', 'subject' and 'description' values.</td>
</tr>
<tr>
<td>name</td>
<td>Normalized String</td>
<td>The name/title of resource.</td>
</tr>
<tr>
<td>description</td>
<td>Normalized String</td>
<td>A human readable description of the contents of the resource.</td>
</tr>
<tr>
<td>subject</td>
<td>Normalized String</td>
<td>A subject of the resource.</td>
</tr>
<tr>
<td>learningResourceType</td>
<td>Enumerated List (see RS-SCM-181)</td>
<td>The type of the resource.</td>
</tr>
<tr>
<td>language</td>
<td>Enumerated List (see RFC 2066)</td>
<td>Language used in the resource.</td>
</tr>
<tr>
<td>typicalAgeRange</td>
<td>Normalized String (Constrained pattern)</td>
<td>Age of the typical intended user. This is described as the minimum and maximum ages.</td>
</tr>
<tr>
<td>textComplexity.name</td>
<td>Enumerated List (see RS-SCM-181)</td>
<td>A number indicating text complexity based on number of established measures. The filter is applied to the 'name' part of this complex structure.</td>
</tr>
<tr>
<td>textComplexity.value</td>
<td>Normalized String</td>
<td>A number indicating text complexity based on number of established measures. The filter is applied to the 'value' part of this complex structure.</td>
</tr>
<tr>
<td>learningObjectives.alignmentType</td>
<td>Enumerated List (see RS-SCM-181)</td>
<td>Learning objective addressed by the resource. The filter is applied to the 'alignmentType' part of this complex structure.</td>
</tr>
<tr>
<td>learningObjectives.educationalFramework</td>
<td>Normalized String</td>
<td>Learning objective addressed by the resource. The filter is applied to the 'educationalFramework' part of this complex structure.</td>
</tr>
<tr>
<td>learningObjectives.targetDescription</td>
<td>Normalized String</td>
<td>Learning objective addressed by the resource. The filter is applied to the 'targetDescription' part of this complex structure.</td>
</tr>
<tr>
<td>learningObjectives.targetName</td>
<td>Normalized String</td>
<td>Learning objective addressed by the resource. The filter is applied to the 'targetName' part of this complex structure.</td>
</tr>
<tr>
<td>learningObjectives.targetURL</td>
<td>URL</td>
<td>Learning objective addressed by the resource. The filter is applied to the 'targetURL' part of this complex structure.</td>
</tr>
<tr>
<td>learningObjectives.caseItemURI</td>
<td>URI</td>
<td>Learning objective addressed by the resource. The filter is applied to the 'caseItemURI' part of this complex structure.</td>
</tr>
<tr>
<td>learningObjectives.caseItemGUID</td>
<td>GUID</td>
<td>Learning objective addressed by the resource. The filter is applied to the 'caseItemGUID' part of this complex structure.</td>
</tr>
<tr>
<td>author</td>
<td>Normalised String</td>
<td>Author or creator of the resource.</td>
</tr>
<tr>
<td>publisher</td>
<td>Normalised String</td>
<td>Owner of the rights to the resource or who made it available (company or person).</td>
</tr>
<tr>
<td>timeRequired</td>
<td>Duration (see ISO 8601)</td>
<td>Time that the resource takes to consume.</td>
</tr>
<tr>
<td>technicalFormat</td>
<td>Normalized String</td>
<td>MIME format of the resource.</td>
</tr>
<tr>
<td>educationalAudience</td>
<td>Enumerated List (see RS-SCM-181)</td>
<td>For whom the resource is intended.</td>
</tr>
<tr>
<td>accessibilityAPI</td>
<td>Enumerated List (see RS-SCM-181)</td>
<td>Accessibility API supported by the resource.</td>
</tr>
<tr>
<td>accessibilityInputMethods</td>
<td>Enumerated List (see RS-SCM-181)</td>
<td>How the resource can be controlled by the user, including full keyboard controlability, mouse controlability, and voice controlability.</td>
</tr>
<tr>
<td>accessMode</td>
<td>Enumerated List (see RS-SCM-181)</td>
<td>The human sensory perceptual system or cognitive faculty through which a person may process or perceive information.</td>
</tr>
<tr>
<td>publishDate</td>
<td>Date (see ISO 8601)</td>
<td>Date the resource was published by the publisher.</td>
</tr>
<tr>
<td>rating</td>
<td>Enumerated List (see RS-SCM-181)</td>
<td>A rating of the quality of the resource determined by the SearchProvider.</td>
</tr>
</tbody>
</table>
SAFARI Montage - LTI Resource Search

Search By CASE Standard With GaDOE Curriculum Map

GSE Eighth Grade Curriculum Map
1st Semester

UNIT 1
Lines and Line Segments

UNIT 2
Transformations, Congruence and Similarity

UNIT 3
Exponents

UNIT 4
Geometric Applications of Exponents

LTI Resource Search Using CASE
(4 - 5 Weeks)
G.A.1.A

UNIT 1 Resources

UNIT 2 Resources

UNIT 3 Resources

UNIT 4 Resources
Search By CASE Standard With GaDOE Curriculum Map