

Self-learning Modules in Daily Life Chemistry

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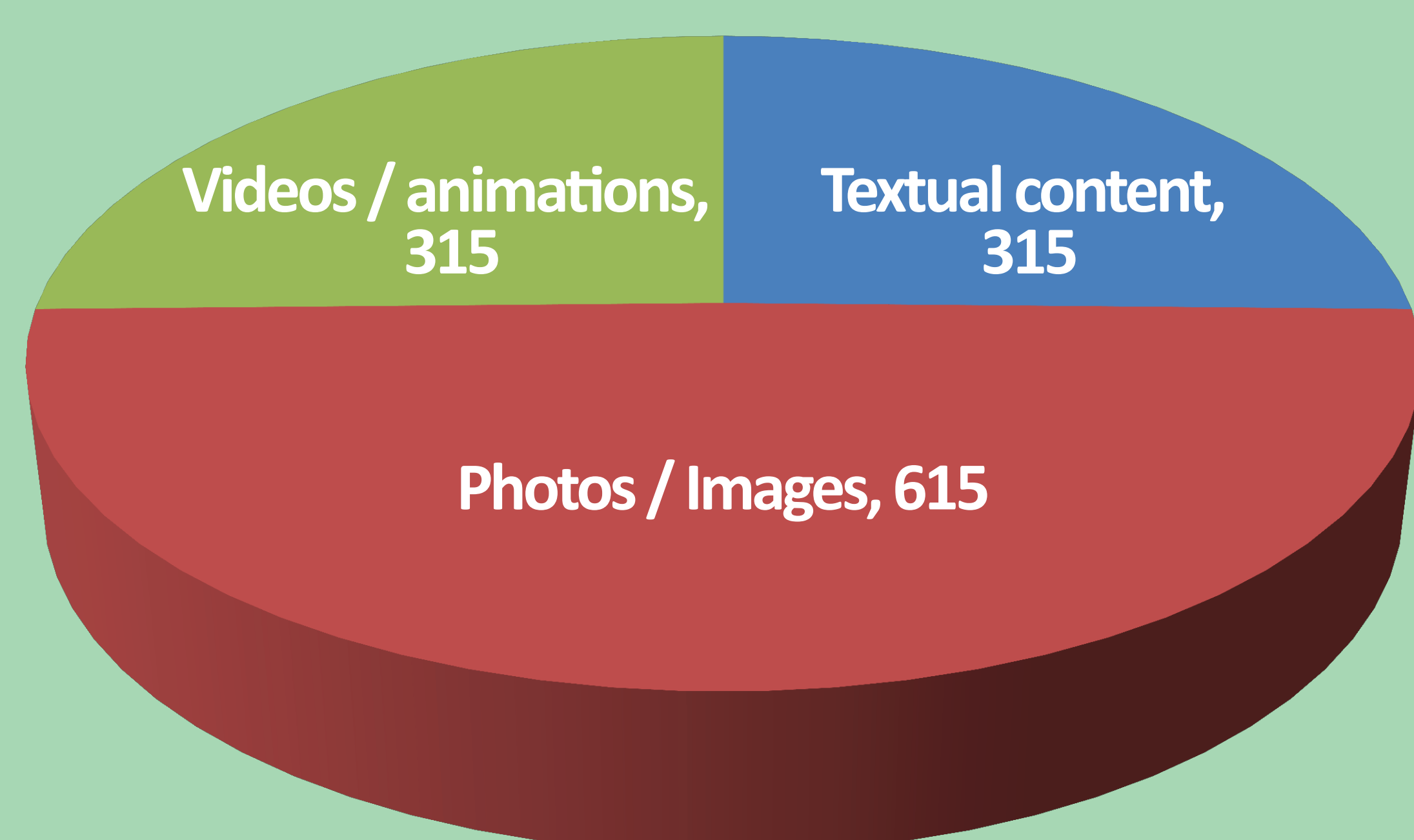
Science and non-science students always encounter different learning needs about science in daily-life situation. For example, when people are choosing packaged food in a supermarket or taking some drugs, they may want to know something about compositions and safety of the constituents in the food or drugs. On the other hand, when science students encounter some materials, no matter whether they are traditional materials or very advanced ones, they may want to know more about their chemical compositions, properties and applications. Furthermore, when chemistry students encounter a situation in which chemical analysis is needed, they may wish to know about the principles and operations of the relevant instruments.

To satisfy their learning needs, a vast number of learning objects in the formats of videos, digital photos, textual descriptions, and animations are produced under three important themes in Chemistry:

- (i) food, drugs and organic chemistry,
- (ii) traditional and modern materials, and
- (iii) chemical analytic methods and their applications in society.

The learning objects cover a wide spectrum of contents, ranging from the basic information about common food and drug ingredients, to the operation guides of advanced analytical instruments.

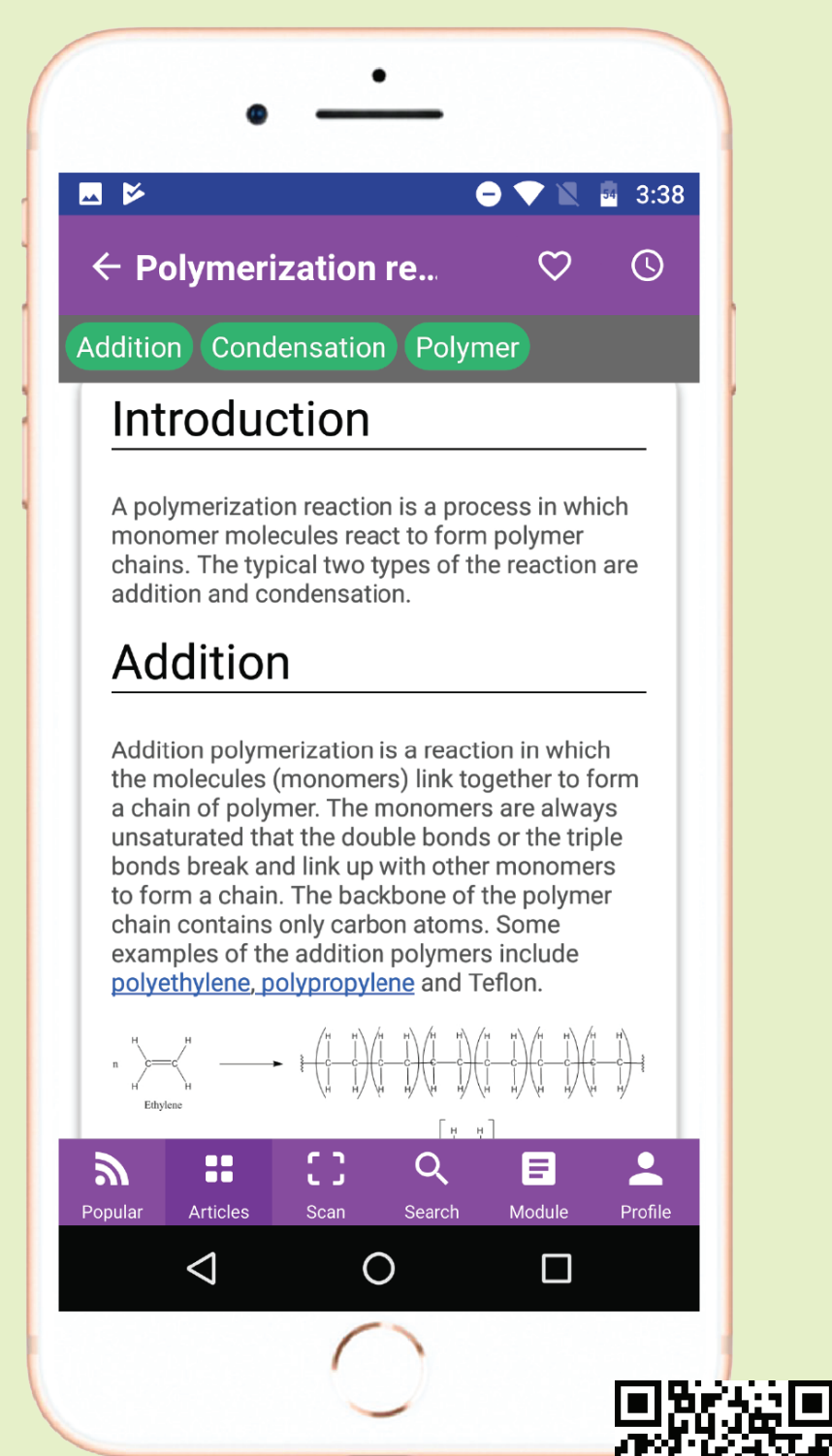
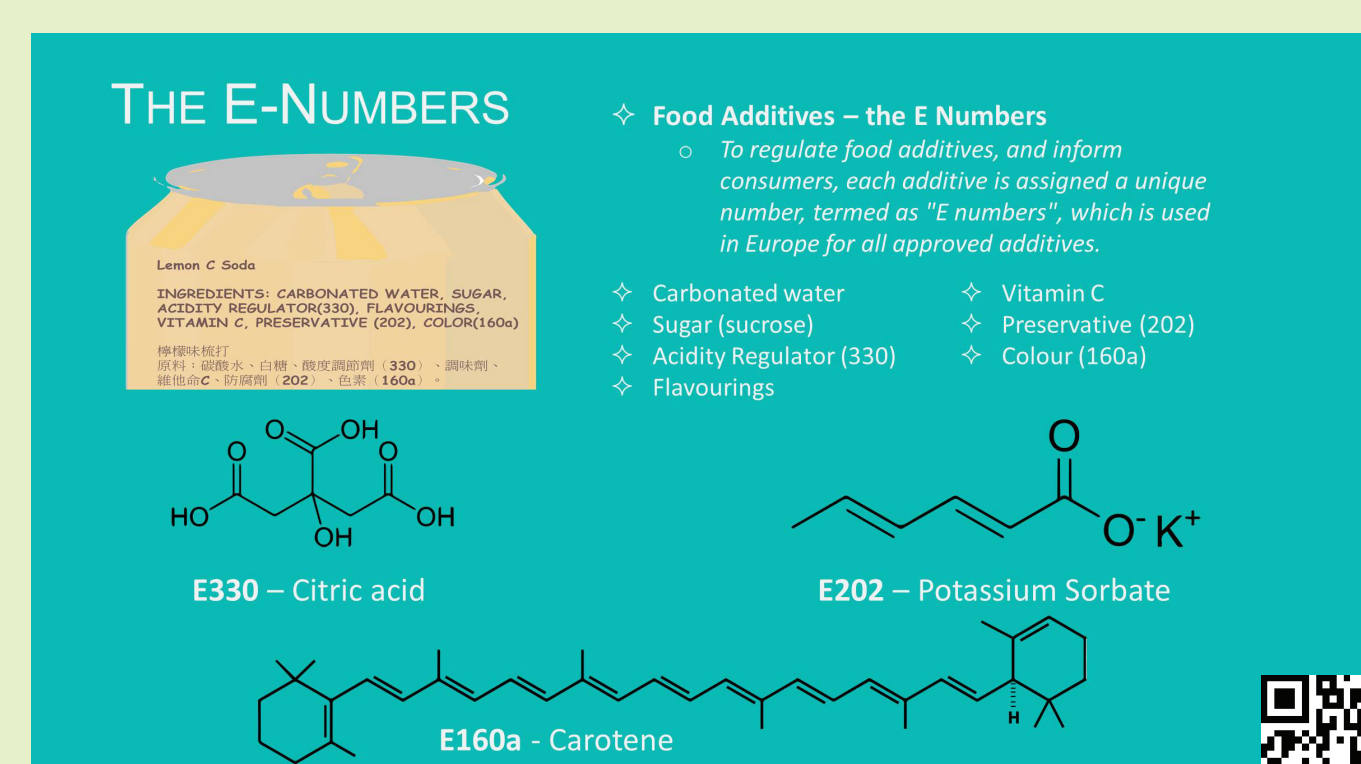
Approximate number of learning items in Chemistry



Food, Drugs and Organic Chemistry

Examples of the learning modules:

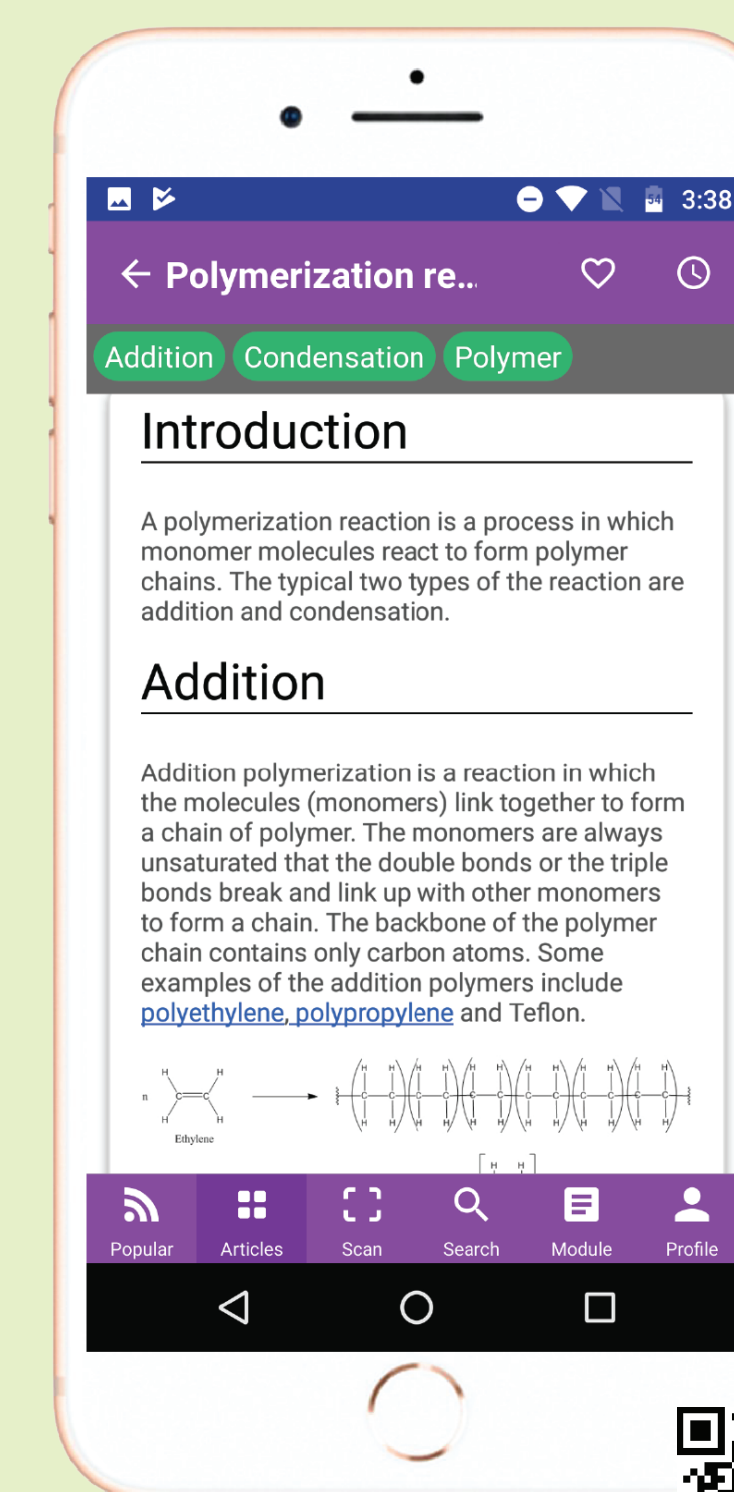
- Food additives
- Food preservative techniques
- Common organic function groups
- Common over-the-counter drugs



Traditional and Modern Materials

Examples of the learning modules:

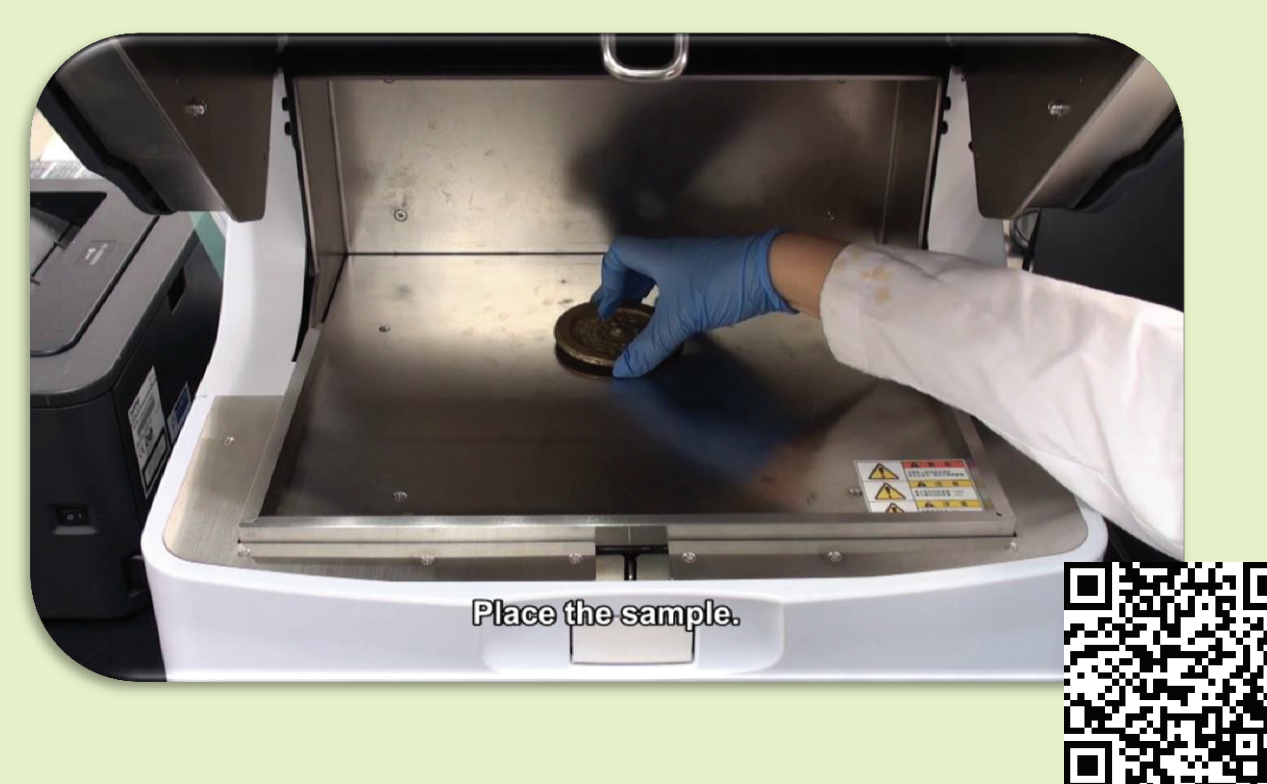
- Examples and uses of polymers
- Examples and uses of alloys
- Characterizations of polymers
- Nanoparticles



Chemical Analytic Methods and their Applications in Society

Examples of the learning modules:

- Applications of inductively coupled plasma – mass spectroscopy (ICP-MS), and X-ray fluorescence spectroscopic (XRF) techniques in the analysis of antique artifacts
- Inductively coupled plasma – optical emission spectroscopy (ICP-OES)
- Infrared (IR) spectroscopy
- Laboratory techniques



Summary of deliverables:

Until November 2018, around 35-40 % of the learning objects have been prepared so far, and the rest are being produced. The finished learning objects are being uploaded to the e-learning platform.

By November 2019, approximately 75-80% of the learning objects will be prepared.

*To implement ubiquitous learning in chemistry courses of various level, and also in the chemistry-related university general education courses, these learning objects will be uploaded to “Science Mobile” so that student can access the relevant information instantly and keep track of their learning progress.

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