

Learning Chemistry via “Science Mobile”

Prof. Michael KWONG, Dr. Wing Fat CHAN, Dr. Yu San CHEUNG

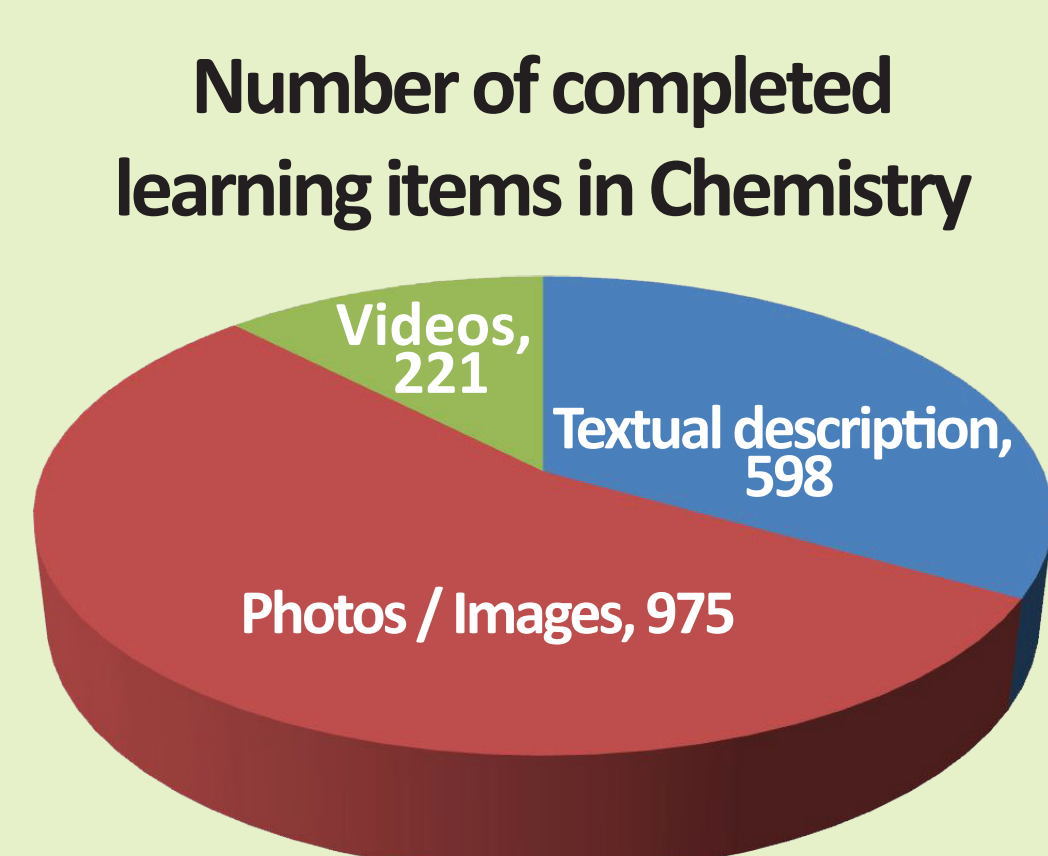
Department of Chemistry

To promote ubiquitous learning in Chemistry, “Science Mobile” is introduced and implemented into courses for students. Until June 2020, over 550 Chemistry learning topics have been uploaded to the platform. The learning topics cover a wide range of contents including the introduction and operation of common analytical instruments, demonstrations of experimental techniques and some basic chemical knowledge in daily life.

To promote students to learn science across the boundaries of disciplines, we focus on ubiquitous learning to promote knowledge integration from different sub-disciplines in Chemistry. The objects are embedded into different learning pathways and modules, which allow students to appreciate the connections between scientific concepts and applications. QR codes, barcodes and RFID tags can be scanned to access the learning objects to achieve ubiquitous learning.

A number of learning objects in the formats of videos, photos, textual descriptions, and webpages 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.

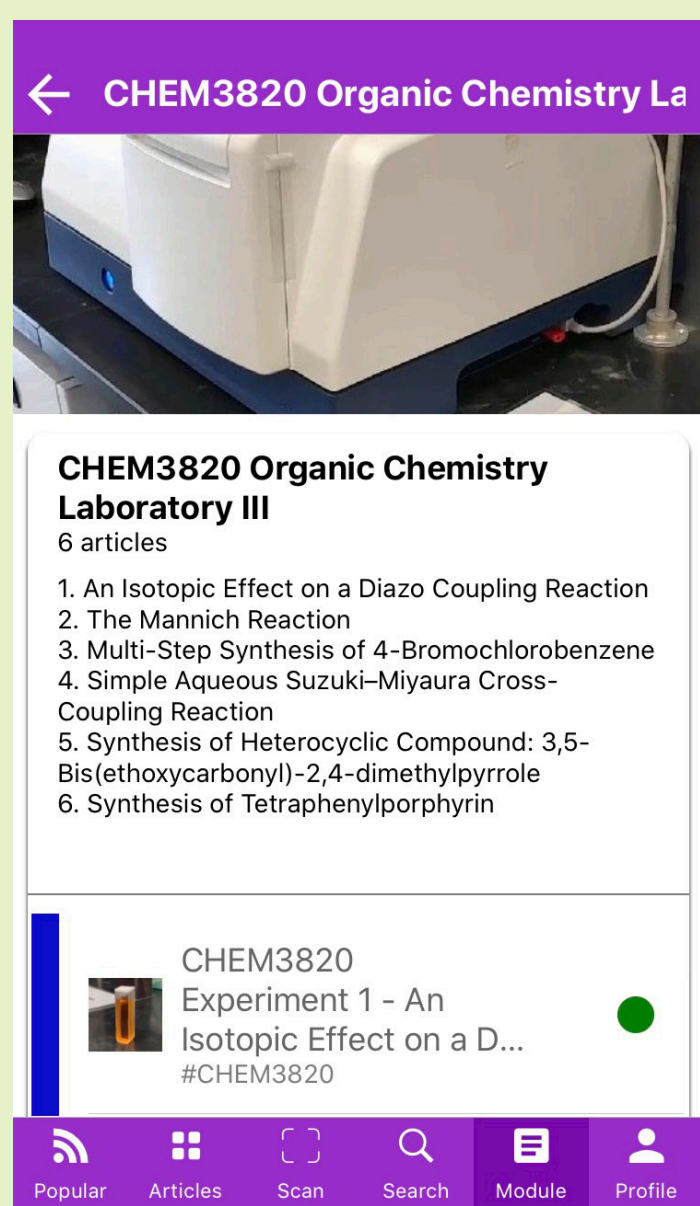


Learning Modules

Learning modules are available to allow students explore more about the objects. The materials are sort by topics or courses and allow students to search for information in a systematic manner. Assessments are also available for students to assess their understanding after reading the pages.

Examples of learning modules:

- Analytical Instruments
- CHEM3820 Organic Chemistry Laboratory III
- UGEB2440 Chemistry of meat



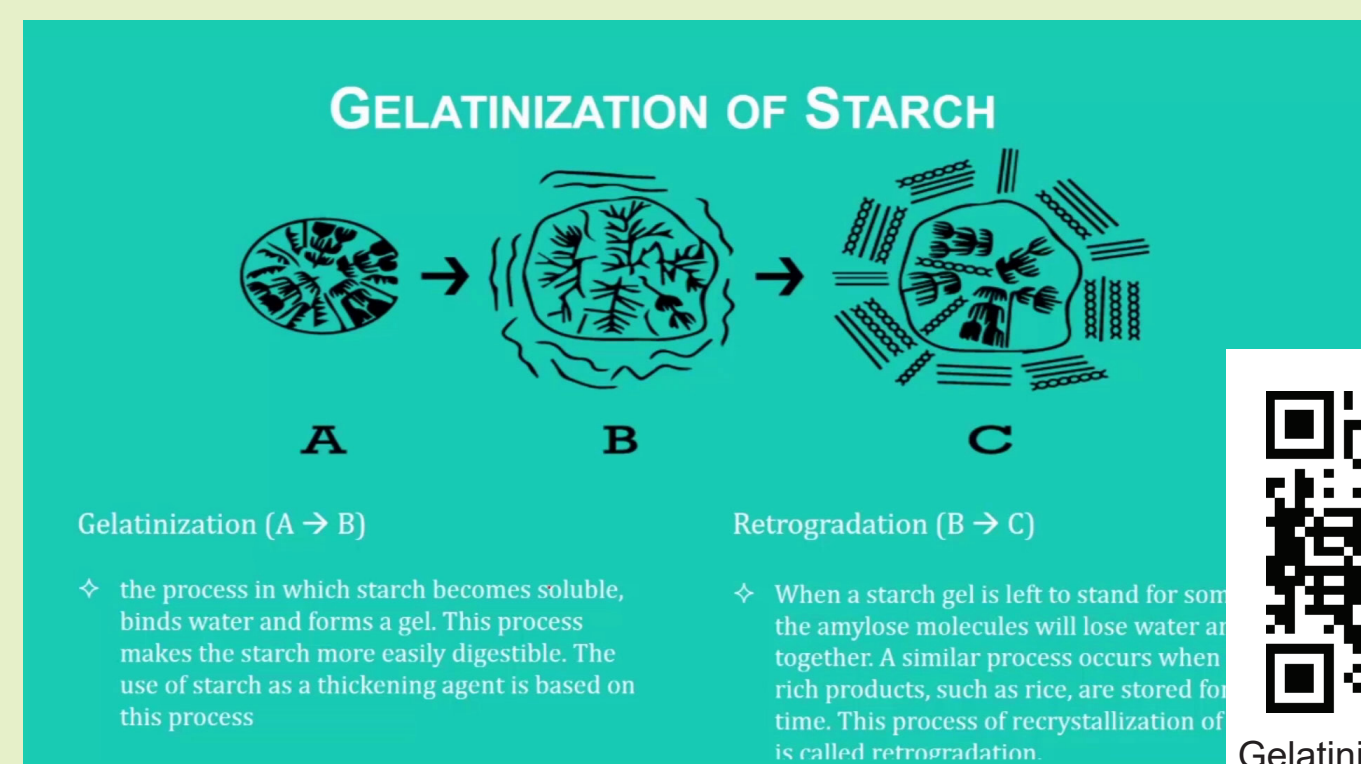
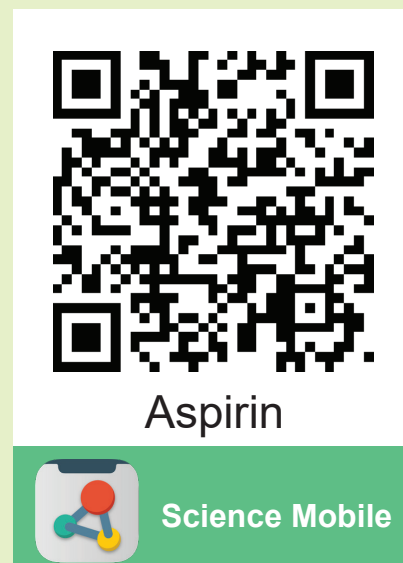
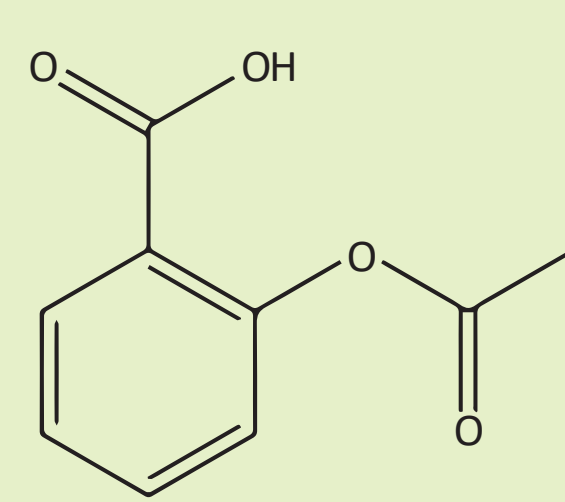
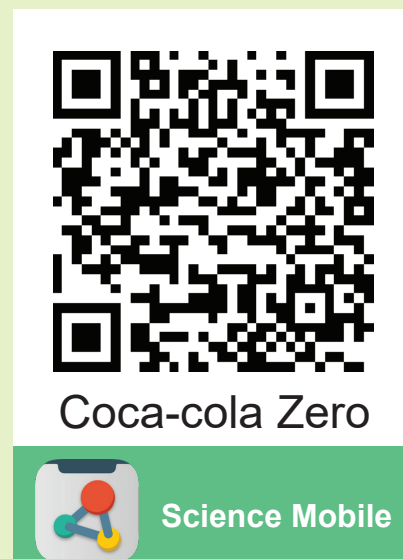
Food, Drugs and Organic Chemistry

Examples of the learning objects:

- Apartame (E951)
- Aspirin
- Carbohydrates
- Coca-cola Zero
- Gelatinization of starch

Examples of the learning modules:

- Basic Chemistry
- Beverages
- Food additives
- Common over-the-counter drugs



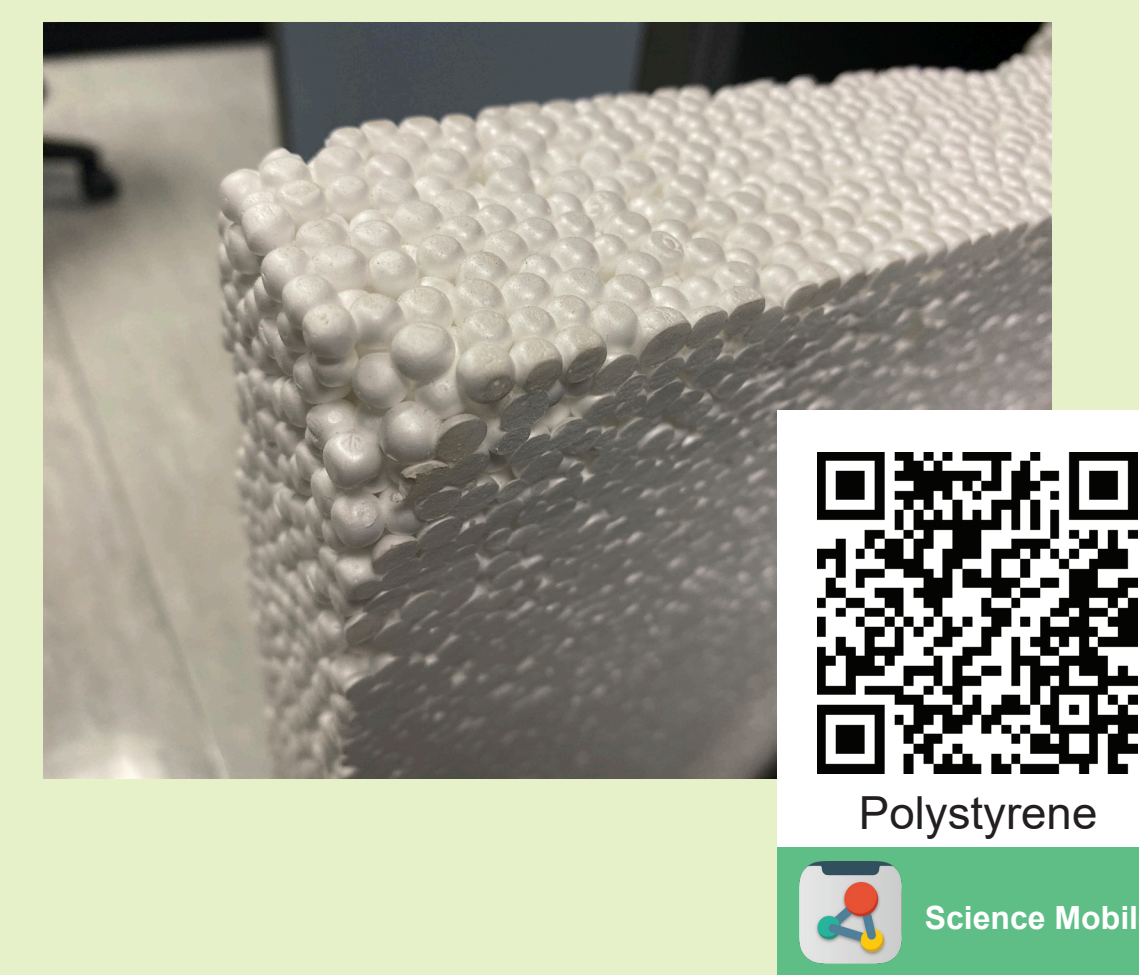
Traditional and Modern Materials

Examples of the learning objects:

- Gold alloy
- Plasticizers
- Polyethylene
- Polyvinyl chloride
- Polymerization reactions: addition and condensation

Examples of learning modules:

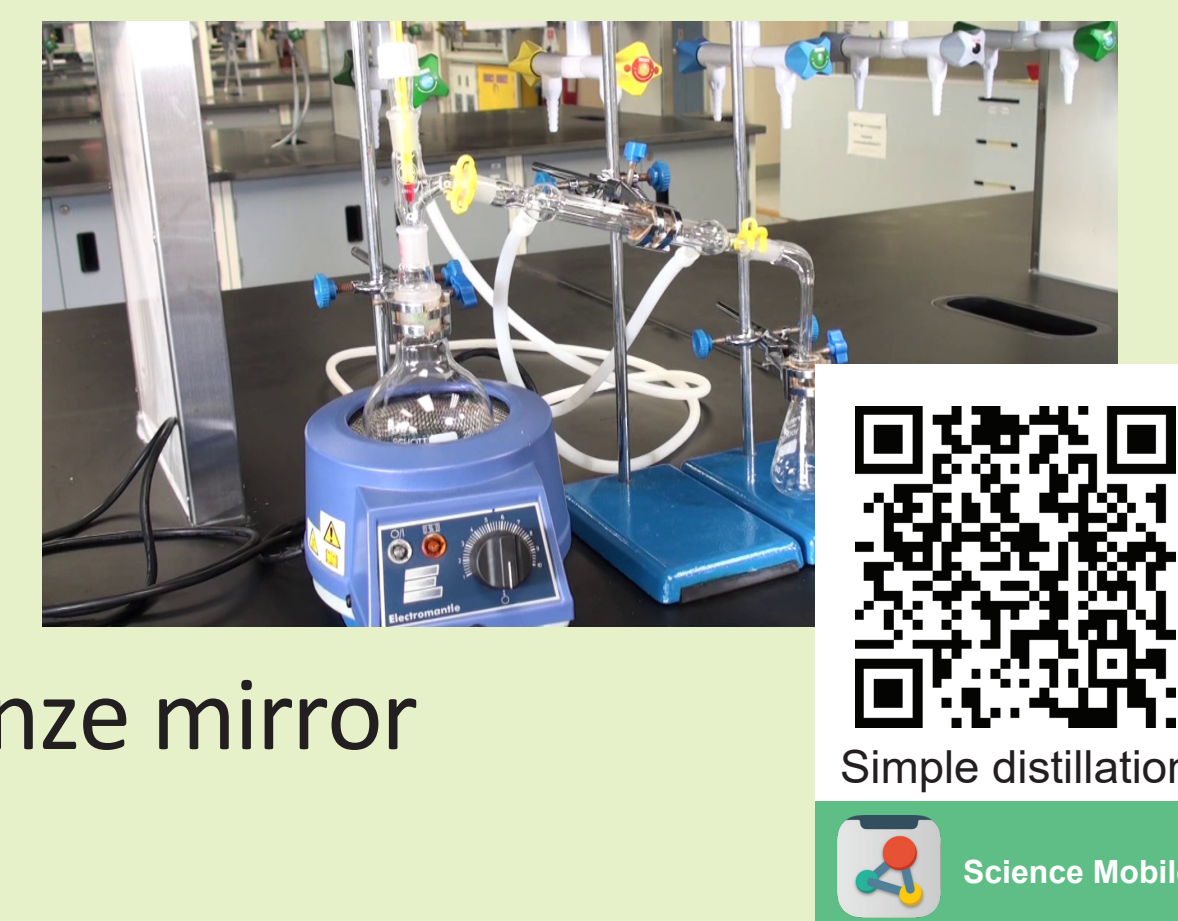
- Ceramics
- Examples and uses of polymers
- Examples and uses of alloys (being developed)



Chemical Analytic Methods and their Applications in Society

Examples of the learning objects:

- Electromagnetic radiation
- Infrared spectroscopy (IR)
- NMR: Anisotropic effect
- Simple distillation
- XRF: Analysis of a Chinese bronze mirror



Examples of the learning modules:

- CHEM3870 Analytical Chemistry Laboratory II
- Basic laboratory techniques
- Schlenk technique



Summary of deliverables:

Until June 2020, around 90% 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 the end of December 2020, all learning objects will be prepared and uploaded to the e-learning platform.

The learning platform is being introduced into a number of science major and general education courses, examples are:

- CHEM2820 Organic Chemistry Laboratory I
- CHEM3810 Organic Chemistry Laboratory II
- CHEM3870 Analytical Chemistry Laboratory II
- UGEB2420 Chemistry in the Kitchen
- UGEB2440 Chemistry of Food and Drinks



Science Mobile



Download on the App Store



GET IT ON Google Play

Financial Support of this Project:

UGC Teaching and Learning Related Funding (2016-2019)