

# How to teach carcinogens at pre-university level?

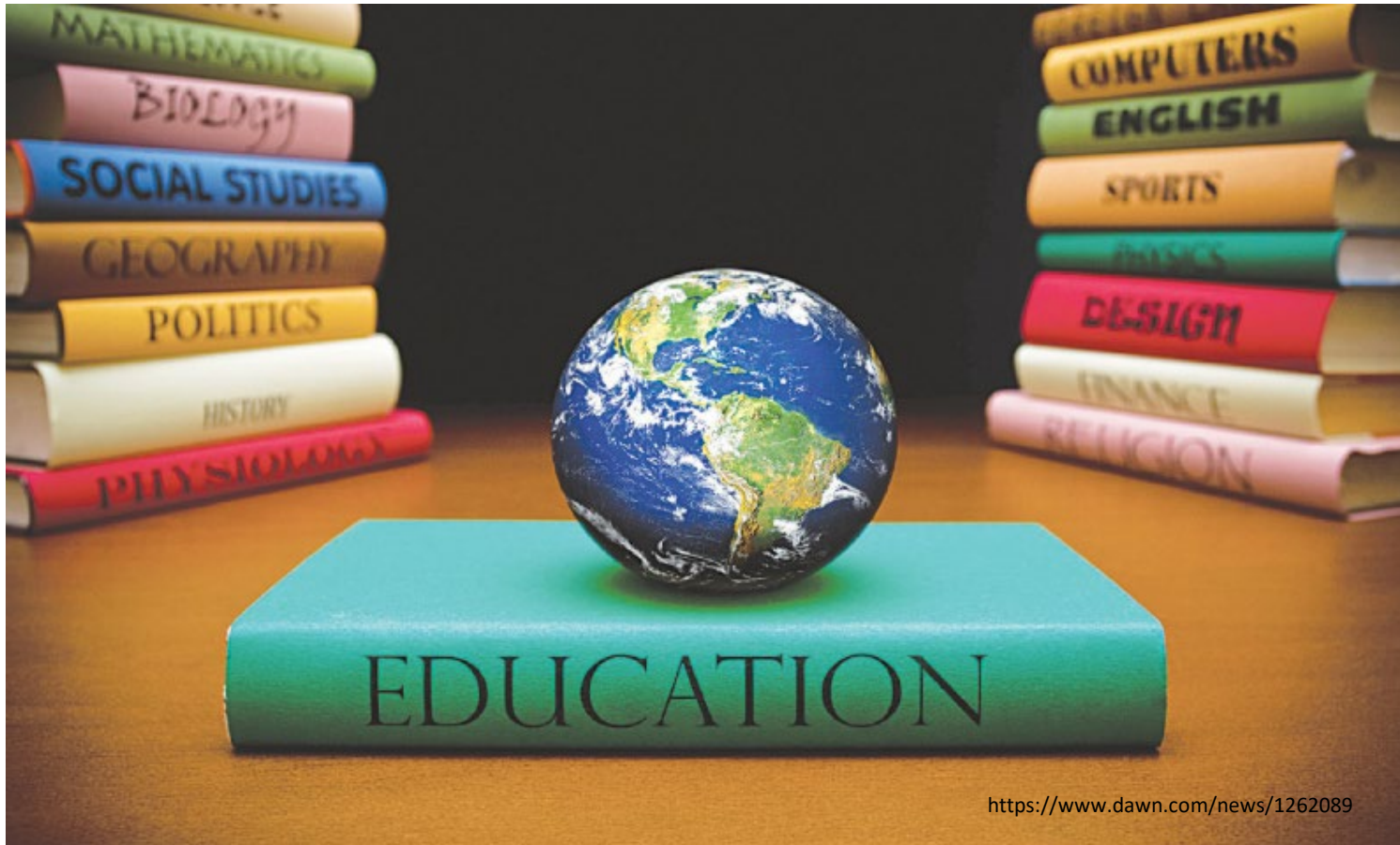
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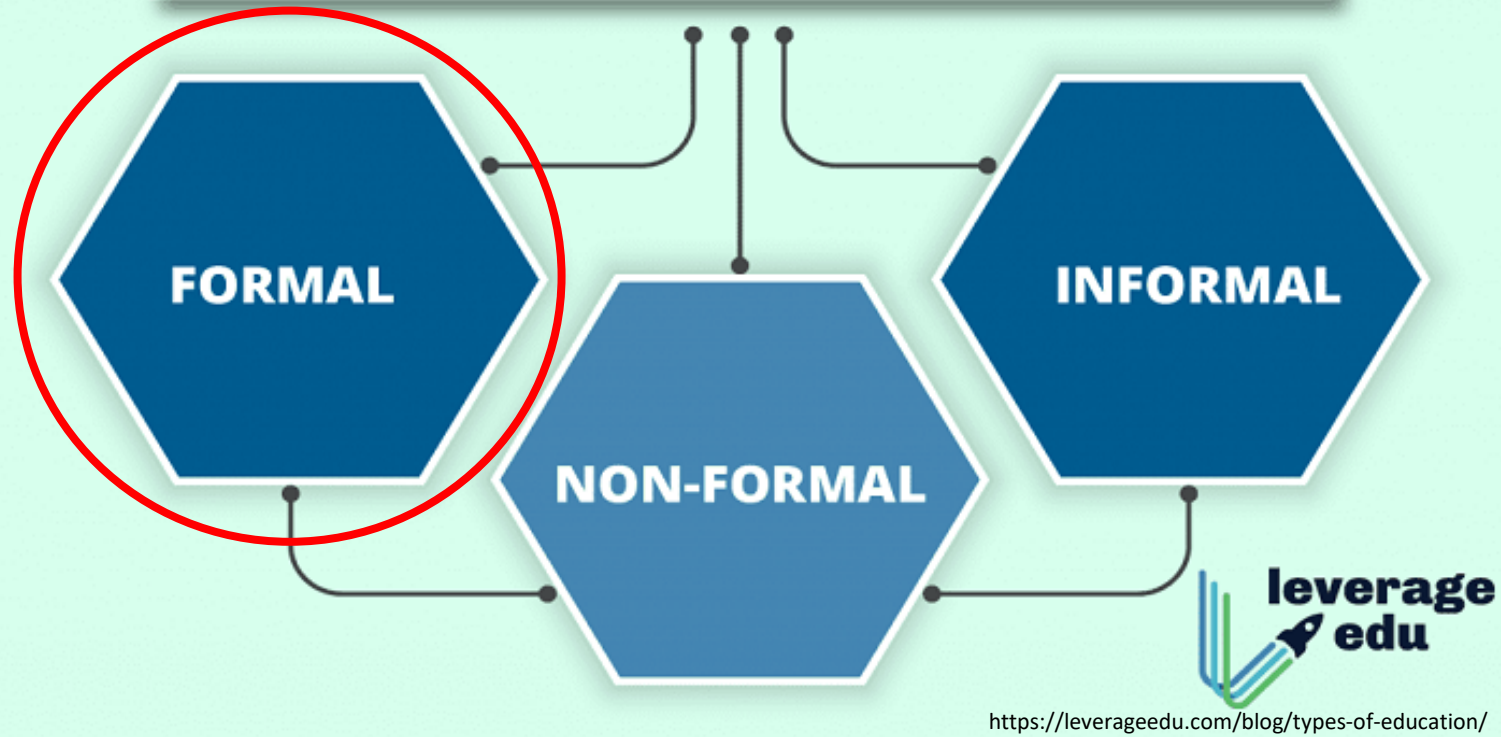
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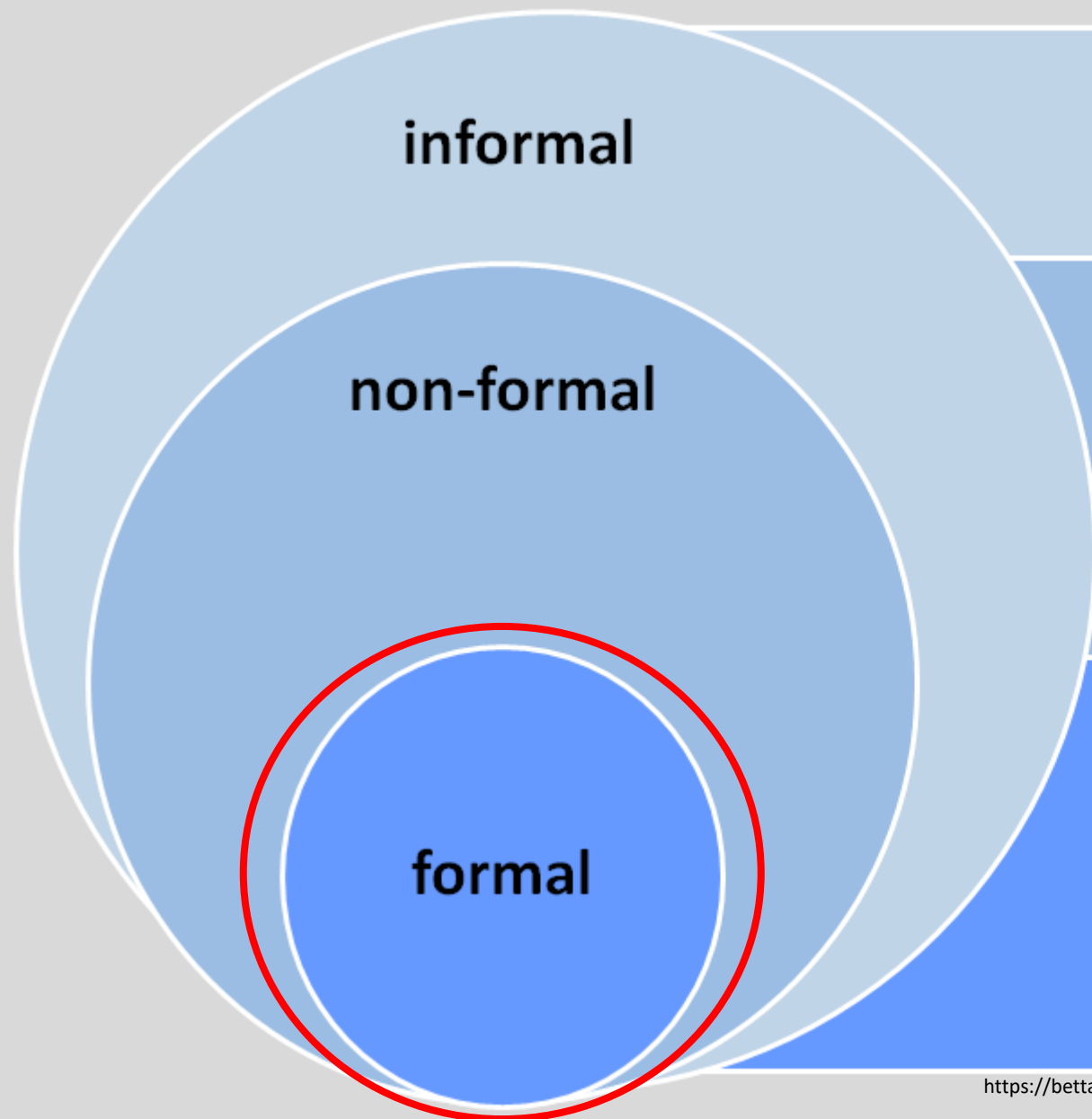
## What do you think about the importance of Education?



# TYPES OF EDUCATION



**We are focusing on formal education / learning!**



**“Informal learning** is learning that occurs in daily life, in the family, in the workplace, in communities and through interests and activities of individuals.”

**“Non-formal learning** is learning that has been acquired in addition or alternatively to formal learning. In some cases, it is also structured according to educational and training arrangements, but more flexible. It usually takes place in community-based settings, the workplace and through the activities of civil society organisations.”

**“Formal learning** takes place in education and training institutions, is recognised by relevant national authorities and leads to diplomas and qualifications. Formal learning is structured according to educational arrangements such as curricula, qualifications and teaching-learning requirements.”

**GHS OZNAČEVANJE NEVARNIH KEMIČALIJI**

**ZDRAVLJU NEVARNI LASTNOSTI**

- AKUTNA (TAKOŠNJA) STRUPENOST** (so zelo krepko) (skupni) (so zelo krepko) (so zelo krepko) (so zelo krepko)
- PROČUŠLJIVOST DIHAL**
- PROČUŠLJIVOST KOŽI**
- STRUPENOST ZA VODNO OKOLJE**

**NEVARNI FIZIKALNE LASTNOSTI**

- OKSIĐOVLJIVI**
- ISKROVILJIVI**
- NEVARNI**
- OKSIĐATIVNI**
- PLIN POD TLAKOM**
- ISKROVILJIVI**

**OKOLJU NEVARNI LASTNOSTI**

- NEVARNI ZA VODNO OKOLJE**

**CMR:**

- carcinogenic,
- mutagenic and
- chemicals toxic for reproduction

**Chronic toxicity!!!**

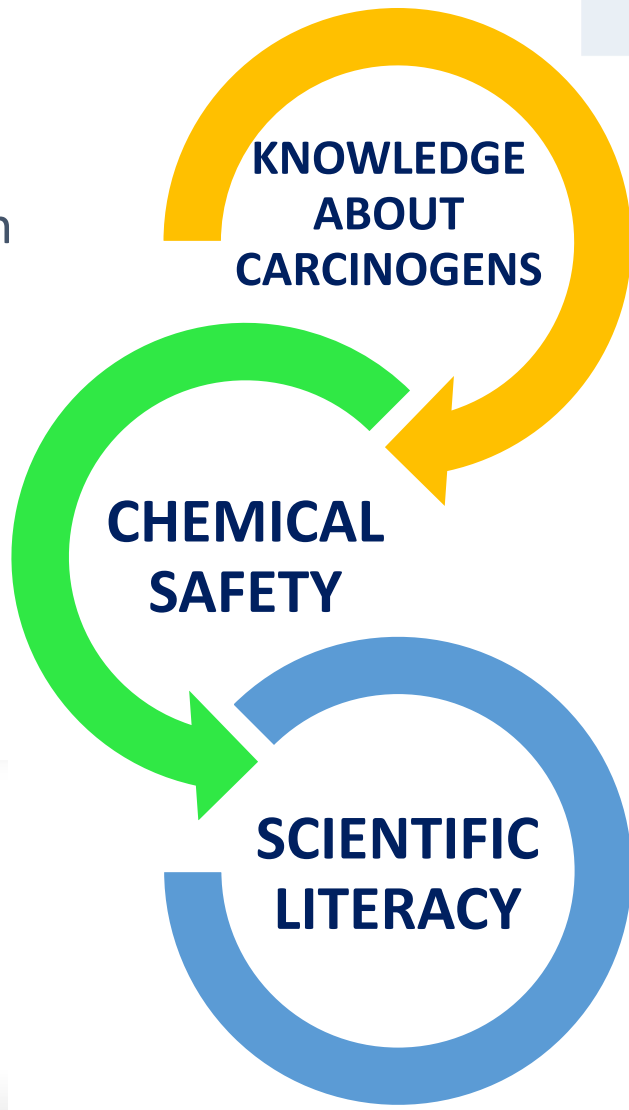
If this symbol and the word "cancer" appear on products,



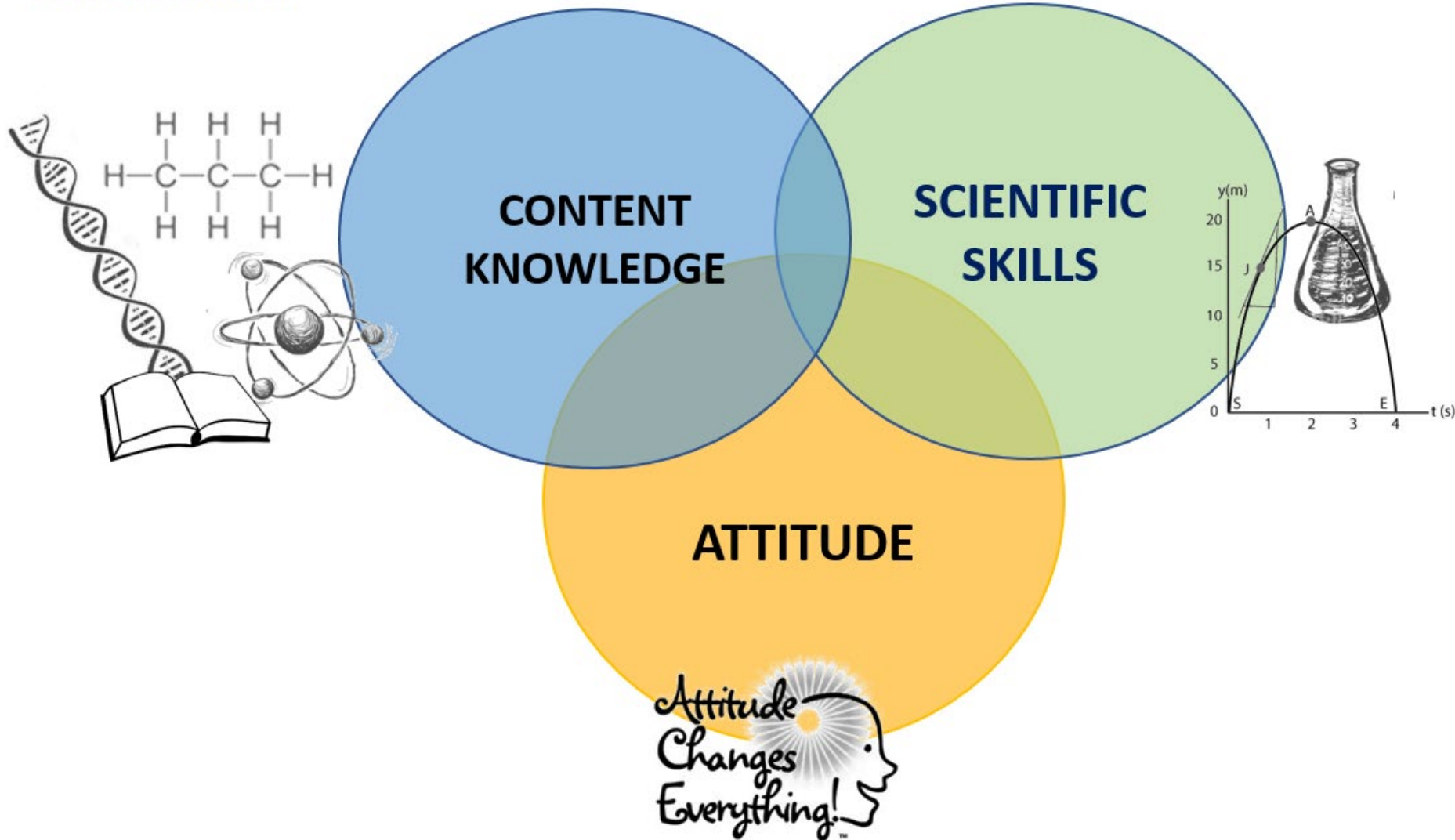
May cause **cancer**.

Suspected of causing **cancer**.

Suspected of causing **cancer** by inhalation.



Scientific literacy includes a person's **science knowledge**, **scientific skills** and **attitude** towards science.



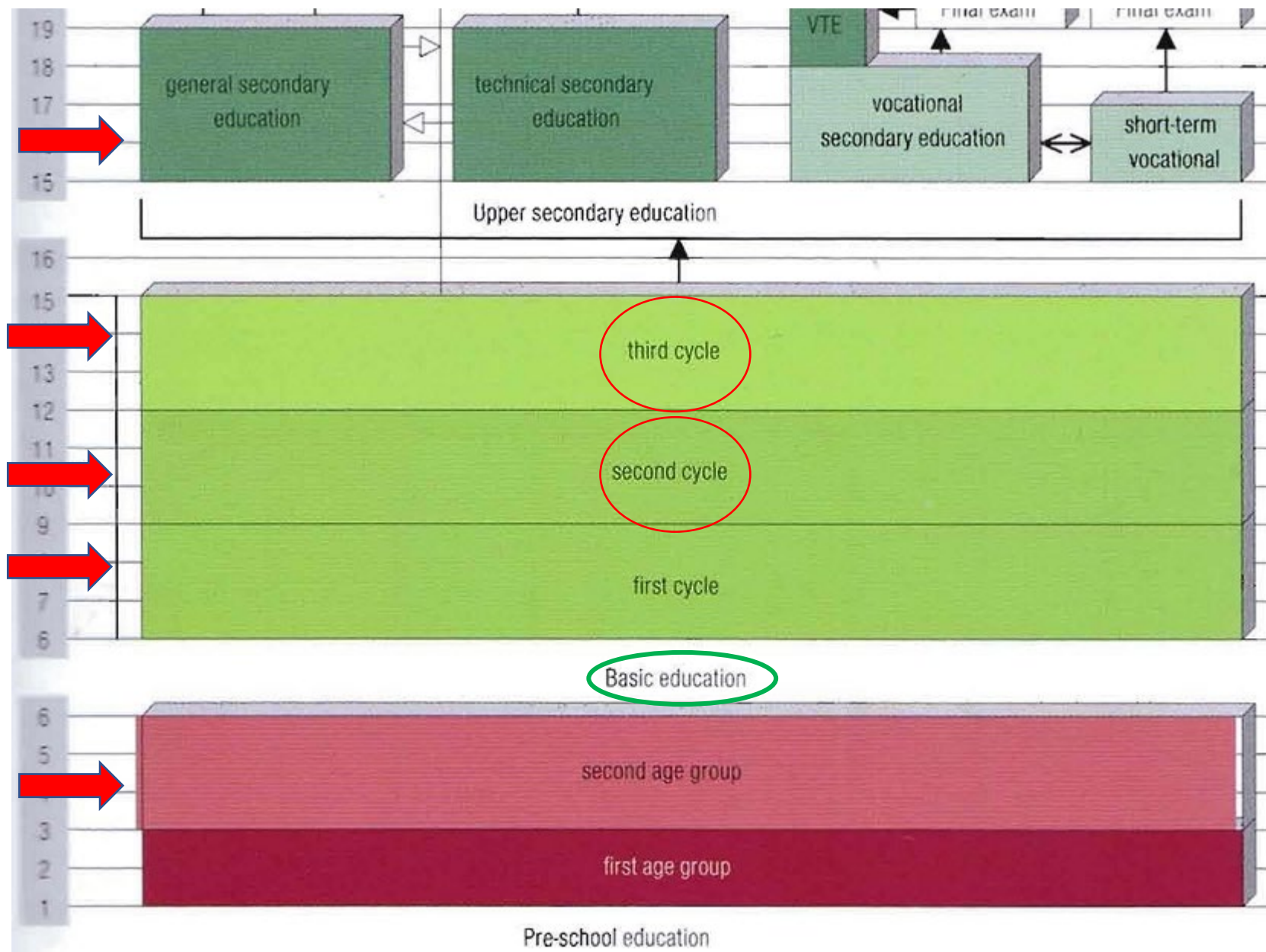
Attitude  
Changes  
Everything!

# | Curricular reform in Slovenia right now...

- reforming the Curriculum, then textbooks...
- ...
- vertical and horizontal integration of Chemical Safety
- ...
- education / in-service training at all levels...
- ...
- new didactical approaches...



# The structure of the (pre-university) education system in Slovenia





**FIRST and SECOND CYCLE of the Basic School:**

→ knowing that dangerous substances (materials) exist (toxic, flammable, explosive, corrosive ...) and recognizing (understanding) some basic symbols (pictograms) for dangerous substances...

**THIRD CYCLE of the Basic School:**

→ recognising the dangers of substances from all pictograms on the products for every day use, knowing the meaning of H and P sentences and acting (handling) accordingly...

**GYMNASIUM: Basics of toxicology**

**CHEMICAL SAFETY FOR ALL**

Educational  
vertical  
of  
Chemical  
Safety

9. grade (14 years):

**7 working stations**

**1.**

What is cancer?

**2.**

Properties of carcinogens

**3.**

Labelling of carcinogens

**4.**

Classification of carcinogens

**5.**

Examples of carcinogens

**6.**

Possible carcinogens at home, work ...

**7.**

12 advices for fighting against cancer

**Many possibilities/ combinations of didactical approaches!**

Team work  
(3 + pupils in one team)



Thank you for your attention!



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