Erasmus+ APRECA

Alfa-college

Bildungsdirektion Oberösterreich

SJÖLINS GYMNASIUM

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JKU COOL LAB

WALLONIE-BRUXELLES ENSEIGNEMENT

Co-funded by the European Union

Learning centers in my class

A pedagogical differentiation technique

Brussels, october 2023

Wallonie Bruxelles Enseignement – Pôle territorial WBE Liège (l'Envol)

Emilie Schmetz - Loubna Boughabi - Sabine Haot

Foundations of differentiation (Tomlinson's model 2018)

Learners needs

- Interests/motivation
- Learning preferences
- Learning capacities
- Learning pace

Proactive answers of the teacher

- Contents
- Teaching processes
- Production types
- Learning climate

Principles

- Community
- Programs and objectives
- Educational flexibility
- Continuous assessment
- Respectful activities
- Convincing data

Foundations of differentiation (Tomlinson's model)

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Contents

- Correspond to ***WHAT***
- Educational intentions
- Competences and knowledges to develop
- Abilities to become self sufficient
- Content differentiation :
  - Abstraction
  - Complexity
  - Variety
  - Study of technologies/methods
  - Study of famous characters

Teaching processes

Correspond to ***HOW***

Understand contents from different pathways :

- Learning/enrichment centers
- Use of technologies
- Different groups of learners
- Flexible planning
- Higher levels of thinking
- Open-mindedness - creativity
- Problem solving learning

Production types

- Correspond to ***RESULTS***

- Learning and competences demonstration :
    - Expectations adjustments
    - Freedom of choices
    - Real problems
    - Real audience
    - Transformation of …
    - Self assessment

Learning climate

- Correspond to the ***SOCIO-EMOTIONAL ENVIRONMENT***

- Positive climate :
    - Creating links with each learner
    - Differences and diversity celebration
    - Awareness of the particularities of the different learners in the class
    - Creating a climate of belonging
    - Creating a sense of security/safe in the classroom
    - Promoting positive self-esteem
    - Explicit teaching of expected behaviors and social skills

Bloom's revised Model
(2001)

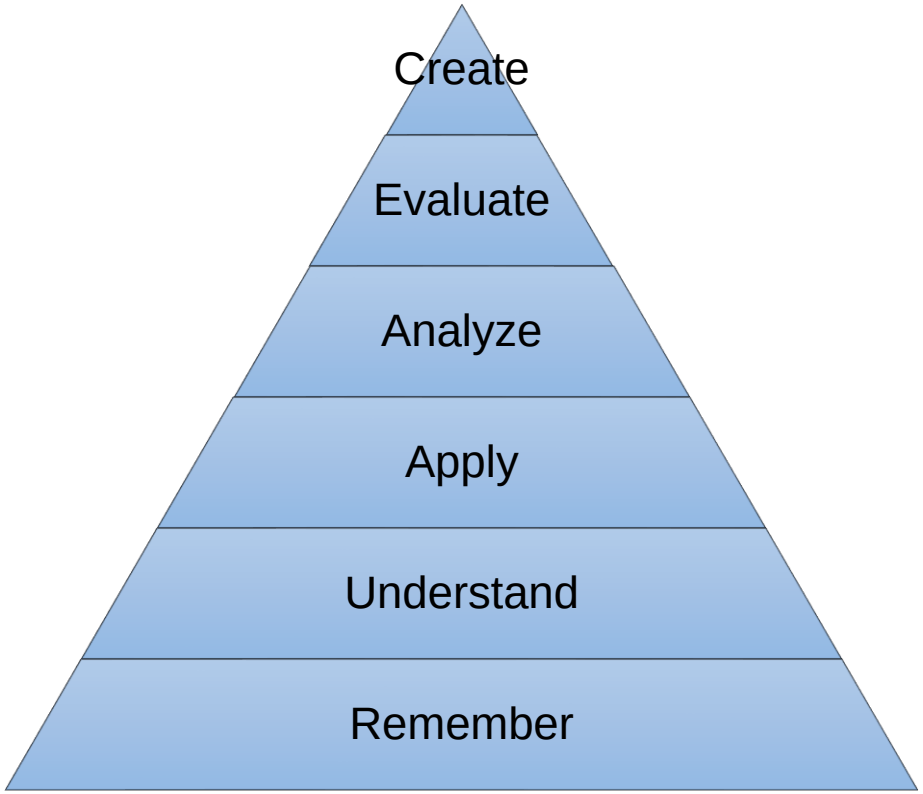
INTELLECTUAL PROCESSES

TYPES OF KNOWLEDGE

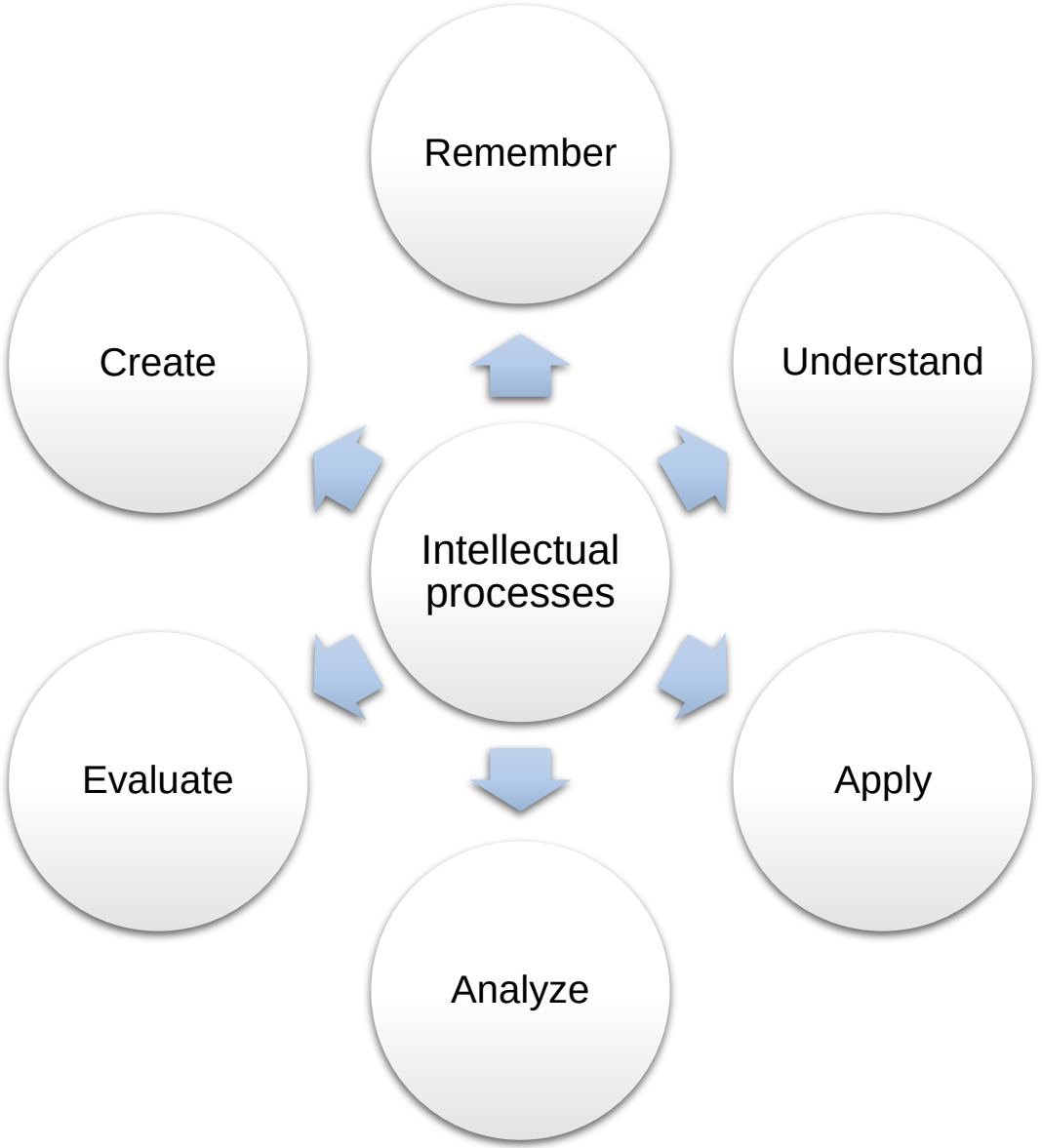
(FACTUAL, CONCEPTUAL, PROCEDURAL, METACOGNITIVE)

TEACHING TO TALENTED LEARNERS

Intellectual processes



Bloom's Model
1956



Anderson and Krathwohl revised model 2001

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Remember

- Acquire and recall data
- Remember what was learned
- The most elementary level of thinking

Examples of instructions :

- Acquire, say, associate, choose, complete, describe, define, precise, draw, distinguish, write, search, recognize, circle, list, name, designate, recite, duplicate, spell, recount, recall, link, highlight, trace

Understand

- Perceive the meaning
- Processing, interpretation and deduction of the effects and consequences

<u>Examples of instructions :</u>

- Associate, choose, classify, compare, describe, illustrate, redefine, explain, paraphrase, reformulate, reorganize, resume, situate, translate, annotate, comment, complete, demonstrate, determine, differentiate, discuss, distinguish, elaborate, estimate, interpret

Apply

- Use what has been learned
- Application of abstractions to concrete situations according to :
    - Rules
    - Methods
    - Concepts
    - Principles
    - Laws
    - Theories

<u>Examples of instructions :</u>

- Calculate, classify, build, demonstrate, distinguish, elaborate, experiment, illustrate, interpret, model, organise, write, draw a diagram/graph, prepare, perform according to steps, simulate, use

Analyze

- Decompose between the constituent elements so that the hierarchical relationships between ideas is clear or expressed
- Isolate components to understand the organization ans structure
- Master the content and its structure

<u>Examples of instructions :</u>

- Associate, categorize, classify, compare, contrast, correlate, decompose, determine, differentiate, investigate, estimate, explain, extrapolate, induce, integrate, order, identify, deduce, discriminate, validate, test, experiment

Evaluate

- Judging the value of a production or the methods used to achieve a specific task
- Use specific evaluation criteria, internal (structure, content) and/or external standards (based on pre-determined objectives)

<u>Examples of instructions :</u>

- Argue, attribute, conclude, criticize, debate, defend, evaluate, refute, quantify, comment, decide, determine, value, estimate, give opinion, establish, validate, verify

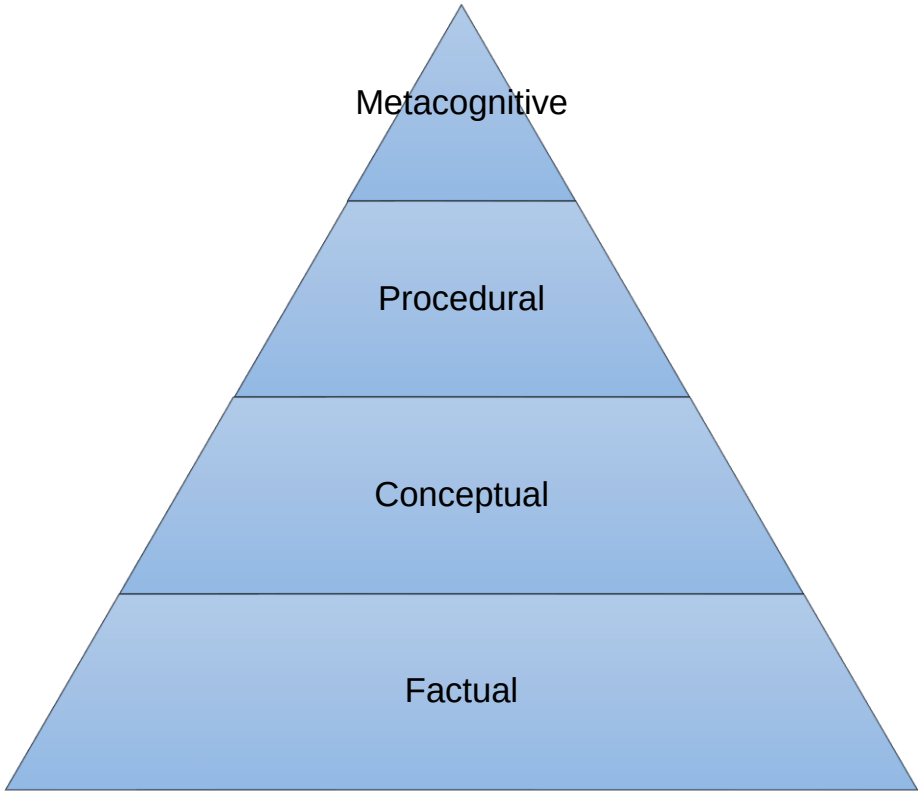
Create

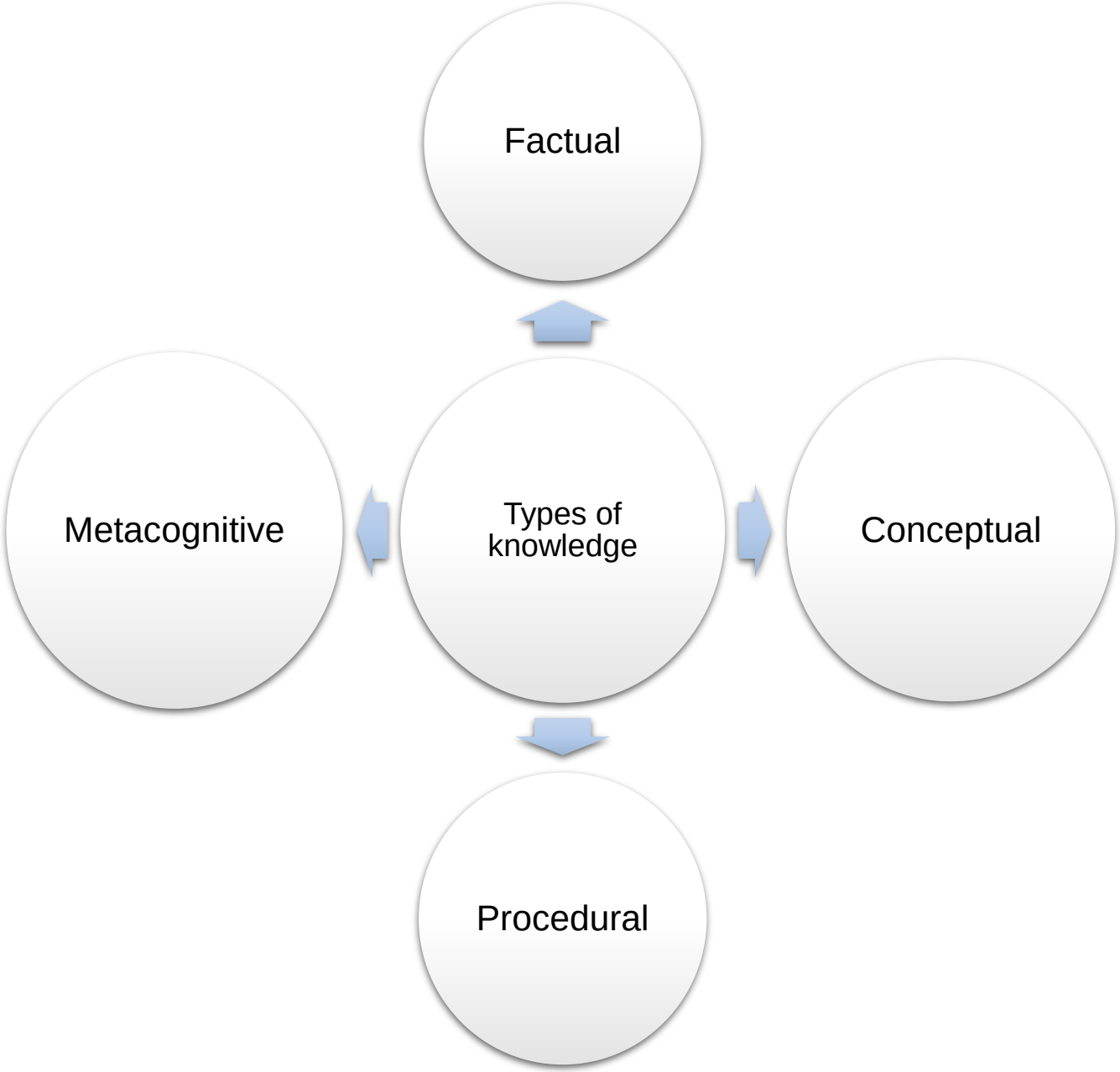
- Bring together parts or éléments to form a whole, a structure not obvious at the beginning
- Synthetize, summarize
- Create at different levels : intellectual and artistic

<u>Examples of instructions :</u>

- Adapt, improve, combine, compose, design, constitute, animate, assemble, build, draw, develop, elaborate, film, formulate, imagine, install, invent, model, produce, project, program, tell, synthetize

Types of knowledge

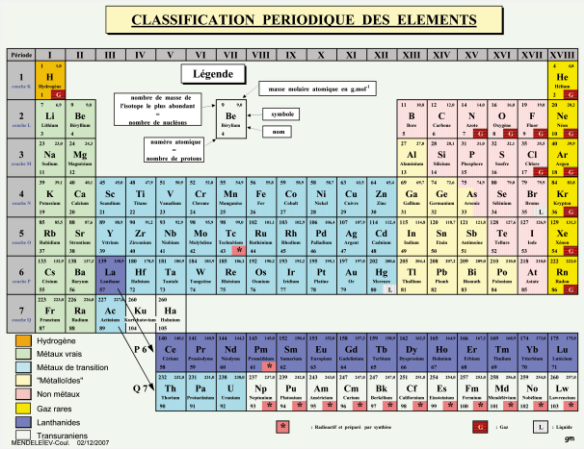

Metacognitive
Procedural
Conceptual
Factual


Factual
Metacognitive
Types of knowledge
Conceptual
Procedural

Factual knowledge

- Knowledge associated with facts, vocabulary related to a particular area of learning, terminology or numerical or graphical symbols

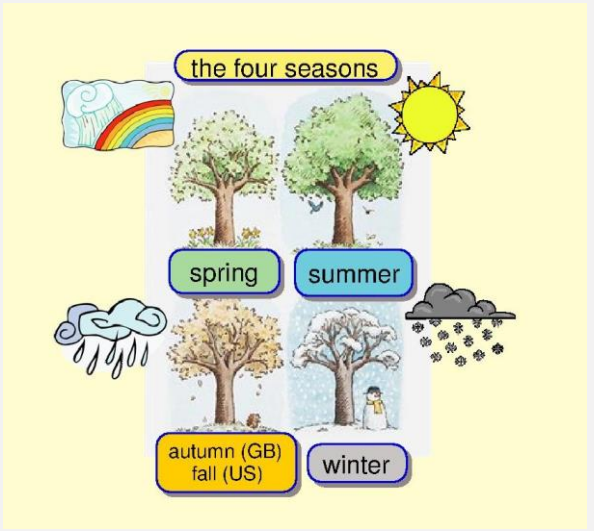
- Ex: periodic table of elements
- Ex: use of greek letters in mathematics (π)
- Ex: event, date, place or people of a historical fact



Conceptual knowledge

- Knowledge associated to
  - Categories
  - Abstract concepts
  - Models
  - Theories
  - Systems

- Linking factual knowledge to understand the concept in its enterity



Procedural knowledge

- Knowledge associated to steps to perform a task (action sequences)
- Know-how skills
- Methods to solve problems or realize specific tasks
- Learning by imitation and observation, explicit by langage until knowledge automation (no more conscious control)
- Linked to factual and conceptual knowledges in ONE given field of competences

→ Not generalizable AND vary by context and objectives

Metacognitive knowledge

- Knowledge the learner has of himself/herself (his/her potential, strategies, functionning)
- Ability to apply this knowledge in multiple situations
- Several types:
  - Strategic knowledge : what strategies should be used? What are the most relevant?
  - Tasks knowledge : know the cognitive requirements of the different tasks to be performed
  - Self-knowledge : weakness, motivation, interests, has an importante role in regulating and controlling learning processes

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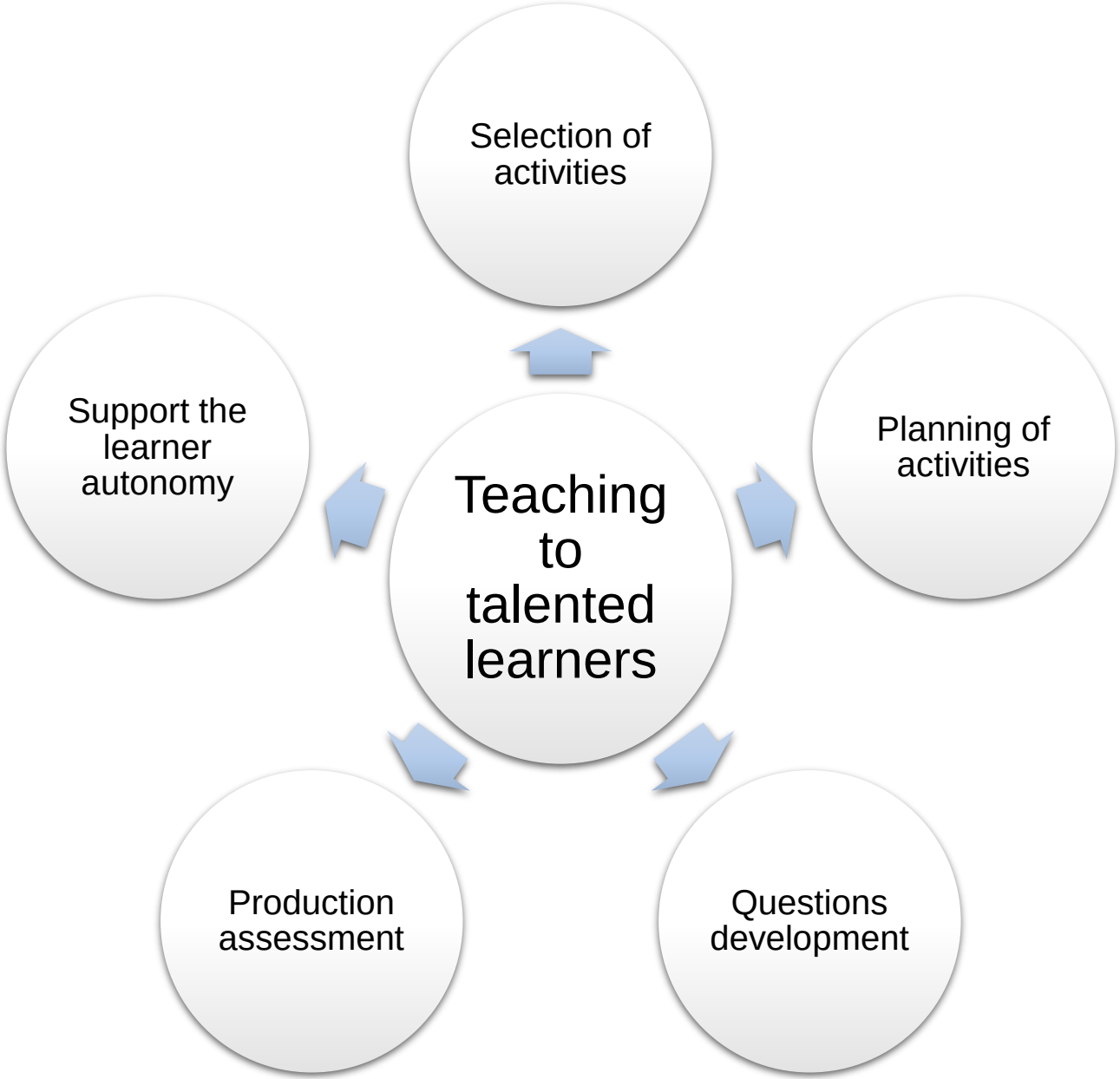
Teaching to talented learners


Selection of activities
Planning of activities
Questions development
Production assessment
Support the learner autonomy
Teaching to talented learners

Selection of activities

- According to the complexity level
- The verbs used in the presentation of the activity determine :
  - The classification
  - The level of thinking/ the intellectual process targeted
  - The behavior the student must adopt

Questions development

- Develop a series of questions on each theme to gradually bring learners to higher levels of thinking

- One theme :
  - ? Recognize
  - ? Understand
  - ? Apply
  - ? Analyze
  - ? Evaluate
  - ? Create

Choice of questions according to the level of the learner

Practical example : a herbarium

REMEMBER

find a tree leaf for the twelve trees listed. Dry them according to the instructions. Note the date and place of harvest.

UNDERSTAND

associate the latin name, a photo or drawing of the fruit and the flower of the tree.

APPLY

create the template to use for the herbarium layout with a specific place for each requested information

ANALYZE

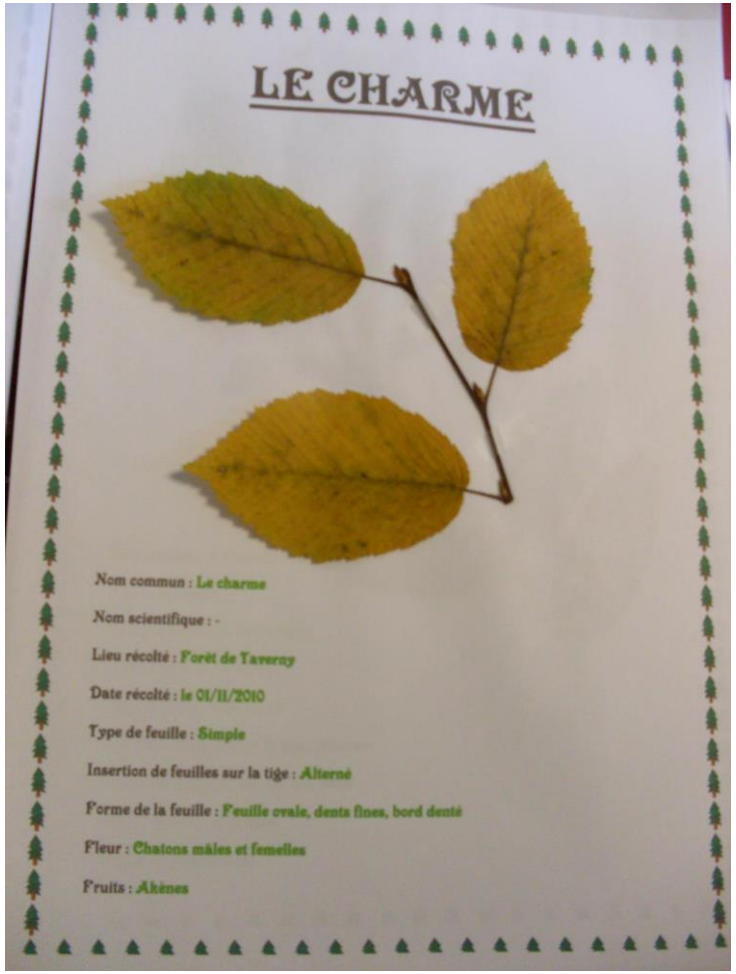
categorize the different tree species according to their characteristics. Use this categorization to determine the order of presentation of trees. Create a table of content.

EVALUATE

What essential data must be present in a herbarium? Does the herbarium created meet all the criteria?

CREATE

create the cover and the fourth cover. Looking at them, we must know what is inside. Use text, photos, images or drawings, different colors and textures.



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Planning of activities

- For talented learners :
  - Promote higher level activities
  - Start at level « apply » instead of level « recognize »
  - Work with procedural and metacognitive knowledges
  - Promote inductive learning
  - Avoid repetition

Support the learner autonomy

- Teach taxonomy to learners (different levels of thinking and corresponding expectations)
- Structuring by the learner of his learning situations
- Allow learner to choose their activity according to the challenge offered to them

Evaluation of the learner productions

- **Remember** : reproduction? Duplication of existing informations ?
- **Understand** : worded? Examples? Summary of information?
- **Apply** : application of methods/models?
- **Analyze** : identification of ideas? Distinction between facts and opinions? Judgment of relevance of elements?
- **Evaluate** : judgment of the consistency of its text? Judgment of the relevance of the conclusions? Judgment of the value of production according to the given criteria?
- **Create**: using his knowledge in different areas to solve the problem? Compose, create, imagine something original. Arrange the elements appropriately and creatively.

Learning centers

Enrichment center

Competence center

Center according to interest

3 classes of learning centers

Enrichment center

Offer students learning options complementary to the mandatory exercises,

Allow them to improve and strengthen their understanding of the subject presented in class,

Allow them to achieve individual experiences of deepening

Competence center

Support for the reinforcement of the student's skills in specific areas for which he needs to approach the subject again,

perhaps in a different way in order to succeed in apprehending it.

Specific to the student's competency profile.

Center according to interest

Based on the interests of the students,

Not the educational content seen in class.

Does not necessarily correspond to the school program but it gives students practical experiences according to their curiosity, their level of expertise and their rhythm.

« Mandatory » exercises

Educational contents that all learners must address

Methods :

- Oral exercises in group
- Individual written exercises
- Handling of material in a specific space within the class
- Workshop (each learner goes to each workshop installed in class)
- Educational games or board games

Principles :

- Each his/her rythm (teacher can adapt the number of exercises according to the learner needs)
- One school subject at a time
- Following regular programs

Complementary exercises

Bonuses, challenges, passing exercises to be performed instead of drills or free time used to disturb other students in the class

Methods :

- Individual written exercises
- Handling of material in a specific space within the class
- Workshop, Educational games or board games
- Contract occupation during free times

Objectives :

- to deepen a subject, a focus
- to discover a new subject
- to make links between different subjects

When can they be used?

- **at any time** :
  - after presenting a new subject to the students
  - during the teaching of the subject
  - as a starting point for a new subject
  - as a possibility of deepening

Construction of a learning center

Types

- Exploration
- Experimentation
- Training
- Multidisciplinary

Organization

- Suspended center
- Centerpiece
- Portable center
- Listening center
- Wall center
- Walking center
- Computer center

Management

- Presentation
- Routine
- Assignment of learner
- Supervision/correction

Components

- Title
- Operating rules
- Improvement sheets
- Magic box
- Presentation
- Educational activities
- Self correction sheets
- Tools

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Types of learning centers

Exploration

According to a given theme based on different disciplines

Discovery of new fields of interest

Catalysing activities as a starting point for further projects

Training

Acquisition of basic skills through material handling and various research and observation methods

The learner is responsible of his own knowledge

Experimentation

Need for lots of space and delimited storage places, away from work areas

Multidisciplinary

Different types of activities in a same center

Different school subjects

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Organization

Listening centers (audiobooks, listening comprehension, music)

Centerpieces (temporary or permanent, in small groups, the material is available)

Walking centers (on a mobile furniture, very useful when no fixed classroom allocated)

Suspended centers (on the ceiling, with clotheslines, when very little space available)

Computer centers (pc, Ipad, software, applications, web, …)

Wall centers (material posted on the wall, the learners works on their bench)

Choices: dimensions, place, arrangment of furniture, number of learners, use of corners and walls

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Management

Presentation	Assignment of learners	Supervision and correction	Routines
-Objectives -What can be done -How to choose and carry out an activity -How to find, use and replace equipment -What you do when you're done -How to store equipment -One center at a time	-By teacher -Spontaneous or planned -Self selection -Contract – roadmap -Rotation assignment	-Linear correction (as soon as finished) -Point correction (once a day or a week) -Self correction -Peer correction I-ndividual meetings -Presentation of work	-Take his personal file -Choose an activity -Carry on the choosen activity (good material and place) -Check the work done -Store the material and his personal file

Components

Title and Number

Presentation

One activity per sheet | List of equipment to use | Scenario

Activity Flow | Lines of research | Evaluation Criteria

Functioning Rules

Concise and clear, posted | Number of students

Routine to adopt | Behaviour to adopt

Specific rules for the material

Educational activities

Ranking by level of complexity, type of activity and the chosen center

Check quantity, duration, strength, aesthetics, accessibility and autonomy

Development sheets

how to complete activities

Self-correction sheets

In the learning center or at the correction office

Magic Box = surprise activity

Charting tools

Statement of users of the center (control of comings and goings)

Activity Log (Tracking Path) | Personal file (supervision of the student's work)

Thank you for your attention

Do you have some questions or remarks?

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