FORMING KNOWLEDGE IN STUDENTS WITH INTELLECTUAL DISABILITIES

Part 1

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OUTLINE

1. Knowledge structure
2. Facts study
3. Forming ideas
Knowledge structure

• Knowledge subdivision into **empirical** and **theoretical**. The first category reflects physical characteristics of nature objects and phenomena.

• **Empirical knowledge**: facts, ideas. Forming theoretical knowledge on their basis. They reflect the essence of nature’s objects and phenomena, internal connections and relations.

• **Theoretical knowledge**: notions, cause-and-effect relations. Notions are the most important part of the theoretical knowledge. Limiting their forming in students with intellectual disabilities by the contents of Biology curriculum.
Facts study

- **Facts** are the obvious characteristics of living organisms and phenomena checked by observations and measurements.
- Placing them into *special nomenclature, biological information* necessary to understand an idea or a notion (form, color, body parts, habit of life), *digital data*, etc.
- Mastering facts by students during observations, self-observations, demonstrations, experiments, listening to professors, reading articles and textbooks, etc.
Mastering facts

**Levels of students’ mastering facts:**

- **one** – non-systematic defining of facts,
- **two** – successive facts enumeration
- **three** – establishing connections between them
- *Facts serve the expansion of data about the objects; as the foundation for conclusions and for specifying theoretical points.*

- Limits of learning abilities of students in remembering and retrieval of facts.
Forming ideas

- Types of ideas by way of formation: ideas of **memory** and ideas of **imagination**.
- Forming ideas of **memory** on the basis of the direct sensing of the object or visual aids: pictures, illustrations, film strips, slides or film transparencies.
- Creating an image of **perception** without the direct sensing of the object (reading or listening to its description), based on reality.
- **Sources** of forming ideas: natural and illustrated visual aids, spoken or printed materials.
Forming ideas

Stages of ideas forming:

• **Stage one** – perceiving objects, singling out characteristics, choosing the most important ones. Providing for the lasting and conscious learning of the significant characteristics by students.

• **Stage two** — renewing the object images by students from memory or with the help of imagination

• **Criteria** for ideas forming is the number of characteristics (specifications) of objects of phenomena renewed by students from memory

• Accurate and full ideas create basis for forming notions in students.
Notions typology

- Notions types according to their **contents**: basics of sciences included in school Biology curriculum.
- **Morphological** – notions about the external structure of organs or their systems: a leaf contains leaf blade with veins and petiole.
- **Anatomical** – notions about the internal structure of organs or their systems: mammals’ heart has two halves (left and right), with a wall dividing them.
Types of notions

- **Physiological** – notions about the functions of organs or their systems: starch produced in plant leaves in the light, plant breathing and alimentation.

- **Systematic** – notions about the subdivision of living organisms into certain groups: invertebrates, (worms, arachnoids, insects), vertebrates (fish, birds, mammals, etc.).

- Excluding from school Biology curriculum a big part of systematic categories.
Notions typology

• *Ecological* – notions about the changes in the structure of the living organisms’ organs depending on the place of growing/ living, modifications of plant leaves, spreading of fruit and seeds.

Notions typology

Notions subdivided by **composition**: according to the contained components

- **Simple** – notions containing one element of knowledge: leaf morphology, petiole anatomy.
- **Compound** – notions containing several elements: morphology, physiology and ecology of leaf.
- **Local** – notions developed in one topic, on separate lessons: evaporation of water by leaves.
- **Special** – notions formed in one of Biology courses: plant morphology, animals anatomy, human physiology.
Notions typology

• **Common biological** – notions about biological regularities pertaining to all living objects: organism is a whole, interconnection of organisms and their environment, interconnection of the organ structure and its function.
• Forming *common biological* notions on the basis of *simple special* notions and their development in all Biology curriculums. Close connection between common biological, special and applied notions.
Литература