

Drawing Like Scientists

Summary

The main purposes for creating this learning unit for 7th graders (13-14 y/o) were to highlight the role of research and planning in the creative process, and to use material covered in another subject during the same period to make learning more meaningful. This learning unit provides an opportunity to try conveying information without words, to discuss the role of visuals in information exchange and clarification, both in a historical and contemporary context. The lesson is spiced up with the opportunity to draw with pen and ink.

Tools and materials

- The slides for the learning unit can be found as links in the learning unit document and are also attached to the drive.
- Tools: HB or softer regular pencil, pens, pen nibs, ink
- Materials: A3 and A4 drawing paper, A4 coated paper for ink drawings (I used paper intended for markers)
- In one lesson, you will need phones to take photos
- Photos for description ([Example](#))

Integrated subjects

Art, biology (examining onion cells under a microscope), film and photography

Duration of the activity and distribution between contact lessons

1st contact lesson (45 min)	2nd contact lesson (45 min)	3rd contact lesson (45 min)
<p>(30 min) Introduction to the topic: With a request to trust the process, pupils draw in pairs with their eyes closed. One partner describes the photo, the other draws based on the description. The photos show enlarged plant seeds. The roles are switched so that everyone gets to describe and draw.</p> <p>(10 min) Introduction to the topic: establishing connections with biology lessons and slides. Discussion about the similarities and differences between scientific photos and illustrations, the role of artists in conveying information before the invention of photography, etc.</p> <p>(5 min) Oral reflection: broad vocabulary and ability to give examples when describing, the role of research in better</p>	<p>(5 min) Introduction to the work of Eadweard Muybridge, the role of photography in making the invisible visible to the human eye, slides</p> <p>(10 min) Work in groups of 3-4 pupils. Task: one member of the group takes a series of photos, while the others dance, jump, imitate sports, etc.</p> <p>(25 min) Select photos from the series that show people in unusual, so-called intermediate poses (taking off, landing, etc.). Draw people in different poses from the selected photos.</p> <p>(5 min) Discussion (new approaches to generating ideas, possibilities for exploring objects through film and photography).</p>	<p>(35 min) Based on materials compiled in biology class, create a research plan in small groups. Objective: When a stranger looks at this work, they will understand how the research was conducted and, if they wish, will be able to repeat it themselves. Examples on slides</p> <p>(10 min) Written reflection: the purpose and importance of planning in the work process, self-assessment: plan(s) have been created, written reflection submitted)</p>

understanding the object, complexities and pleasant surprises during the work process.		
4th contact lesson (45 min)	5th contact lesson (45 min)	
(15 min) introduction to drawing with ink and pen (tools, careful use of tools, choosing suitable paper) (25 min) drawing textures based on examples and spontaneously (5 min) reflection: more complex and enjoyable moments in terms of the techniques and tools used. Reflections are written on practice paper with a pen.	Drawing a research plan based on the created draft. Evaluating your own work. Criteria explains the necessity of research and planning, sketches of poses have been made, draft(s) and ink drawings related to biology lessons have been made	

Stages of the learning scenario:

1. Introduction (warm-up, context):

Different activities took place in different lessons, so the warm-up activities were related to the topic of the lesson. The first warm-up task was drawing based on a description, with the aim of getting pupils to think about the role of images in information exchange and communication in general. Later on, I mostly used image material to support discussions as a warm-up.

2. Research or creative task (problem setting):

In small groups, recalling what had been done in biology and taking notes, which could later be used in creating designs.

3. Activities (learning activities, work forms):

The learners worked individually and in groups. Discussions, analysis of visual materials, drawing, describing, and comparing took place.

4. Creative output (presentation, sharing):

There was no separate presentation. On the learners' own initiative, a spontaneous presentation of drawings based on the descriptions took place.

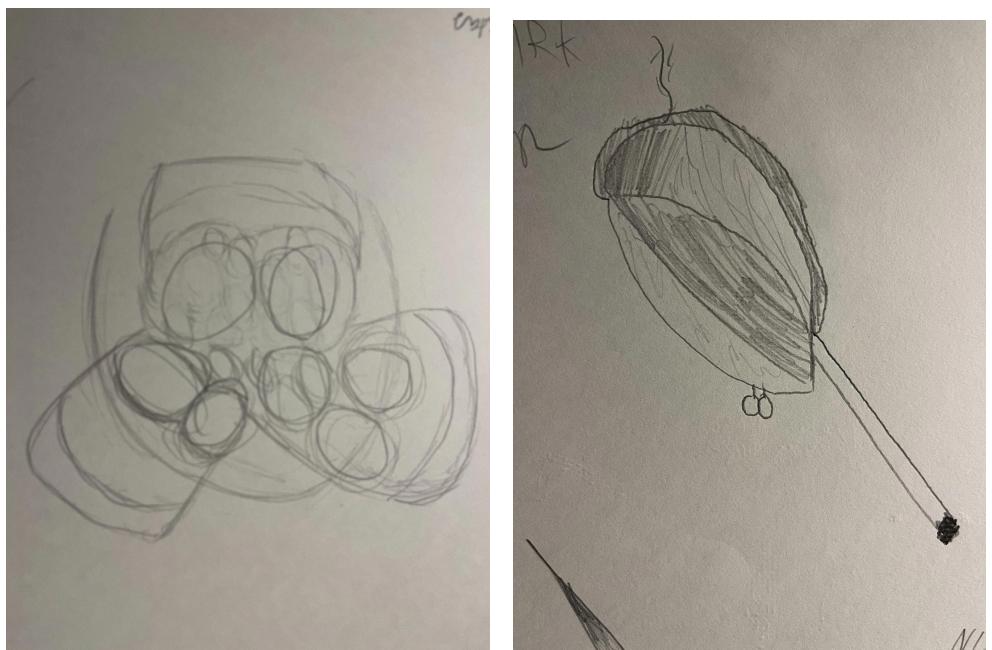
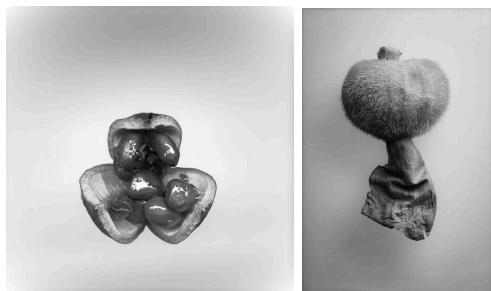
5. Reflection and creating meaning:

As one of the objectives of the learning unit was to highlight the role of research and planning in the creative process, the questions guiding the reflection mainly summarized the role and possible uses of plans. The pleasant and unpleasant aspects of planning were highlighted, as well as the possible benefits in other teaching activities that require research.

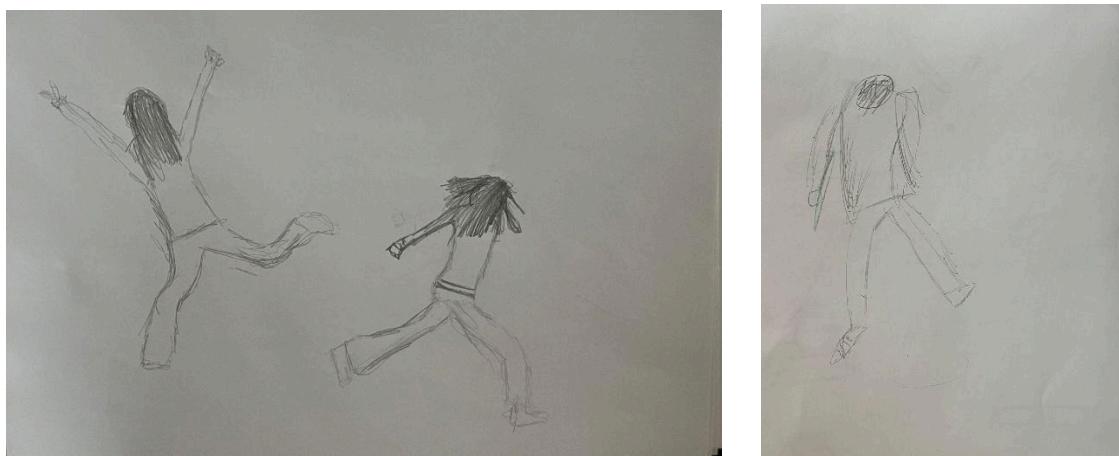
Model of Integrated Learning and Teaching of Creative Subjects elements in use:

- Concept
- Narrative**
- Rhythm
- Composition**
- Collaboration**
- Reflection**
- Personal meaning**
- Creative self-expression**
- Learner agency**

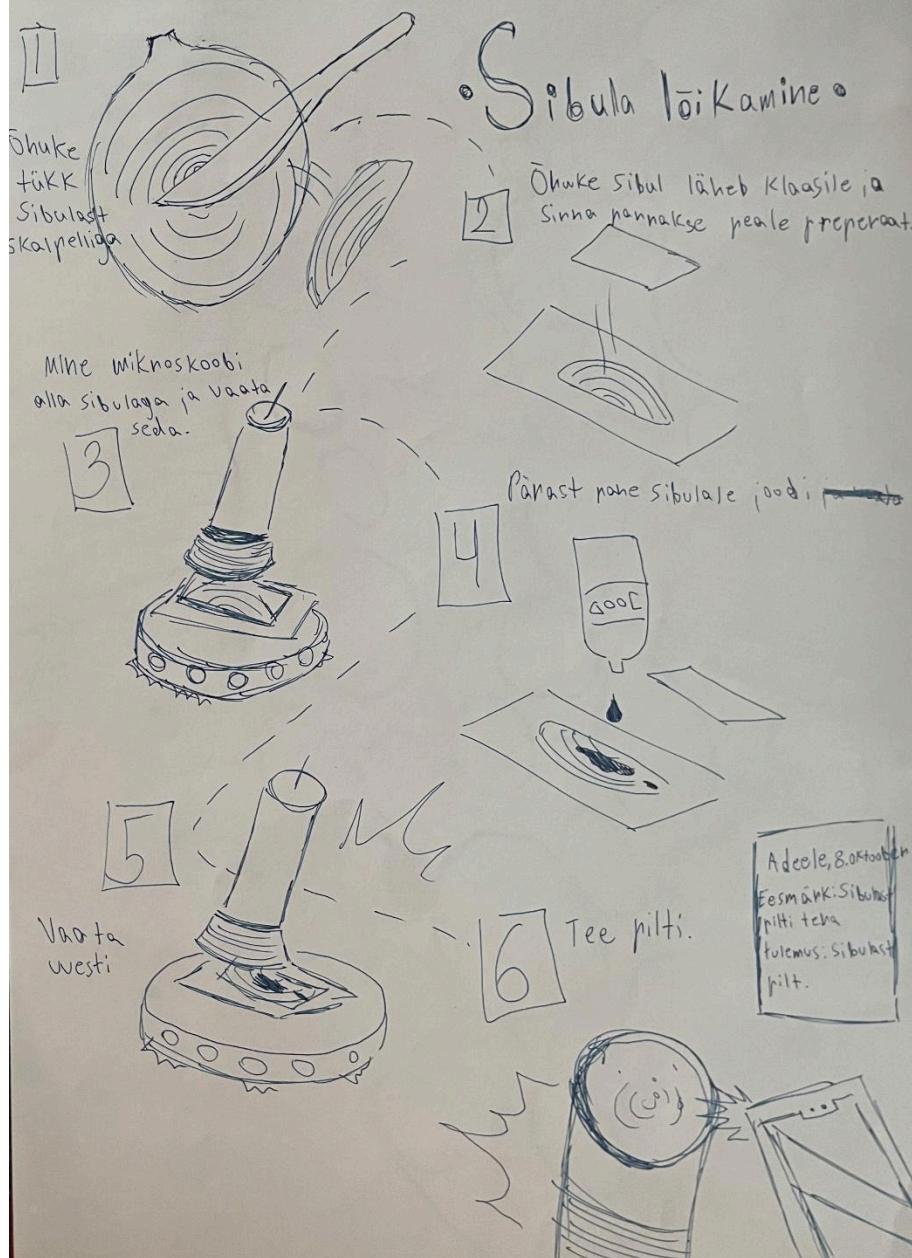
Work results:



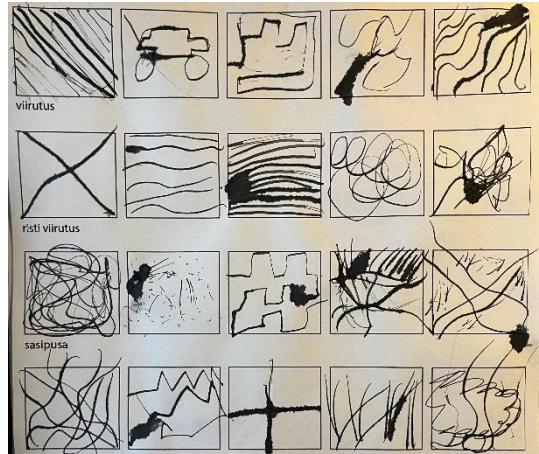
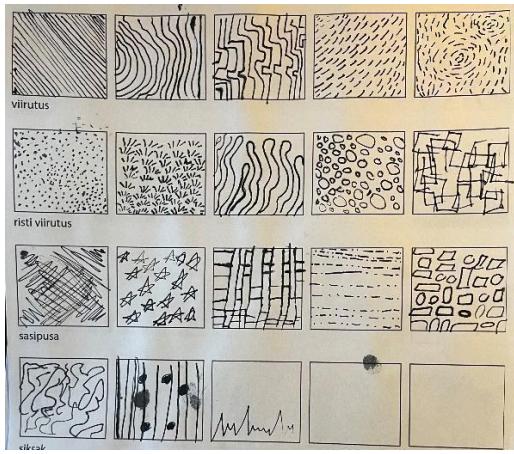
1. Examples of photos and drawings provided for description



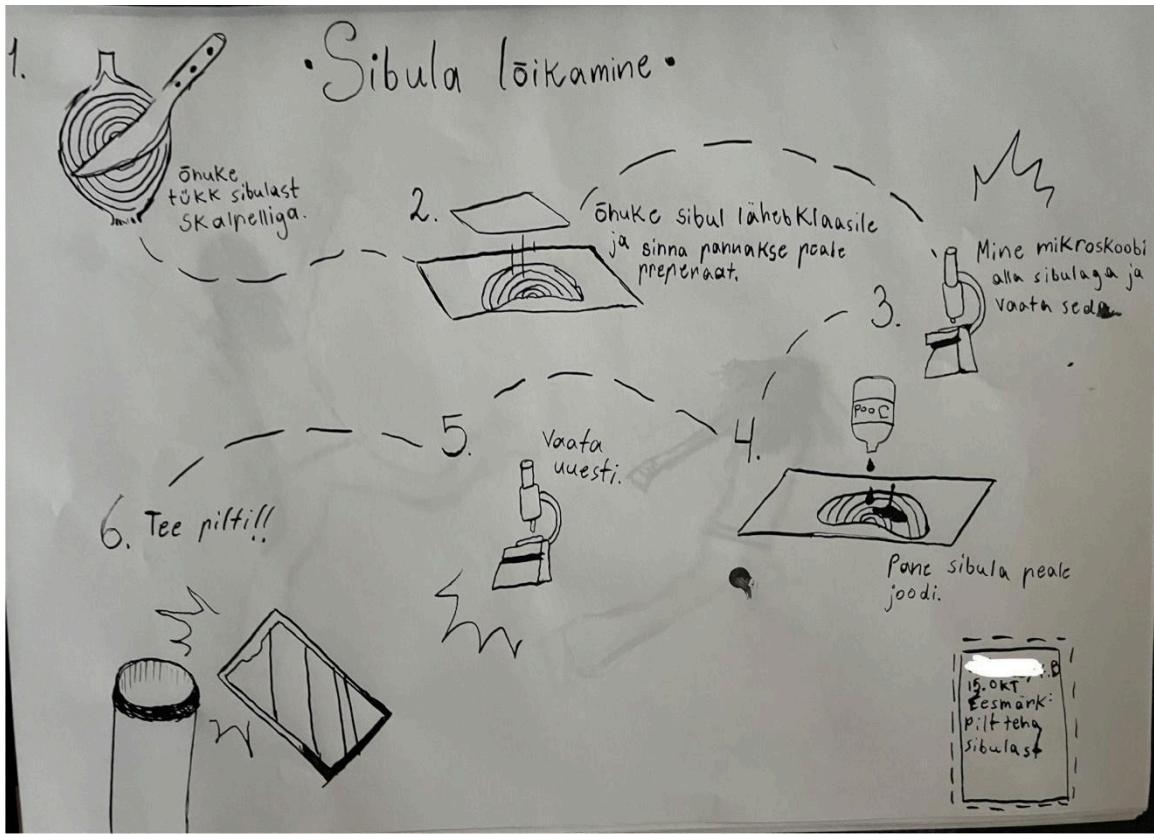
2. Drawing poses selected from video stills



3. Individual plan based on material produced in group work



4. Ink drawing exercises



5. Complete work