



GO-LAB

Experimentieren mit Virtual und Remote Labs

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Das Go-Lab Projekt



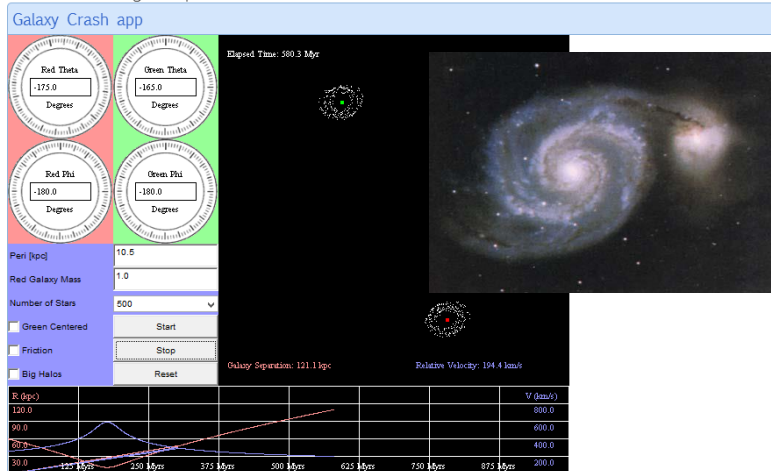
„*Global Online Science Labs for Inquiry Learning at School*“

- EU-Projekt: 19 Organisationen aus 12 Ländern
- Ermöglicht *Zugang zu Online Laboratorien*, um Klassenunterricht sowie Lernaktivitäten außerhalb der Schule anzureichern
- Erfahrungen in der Wissenschaft durch *eigenständiges Durchführen von Experimenten* und Nutzen von modernem Laborequipment zu sammeln

Experimentieren mit Online Labs

Orientation Conceptualisation **Investigation** Conclusion Discussion

This is the Investigation phase.



Remote Lab:
reales, physisches Labor,
Fernzugriff via web-interface.

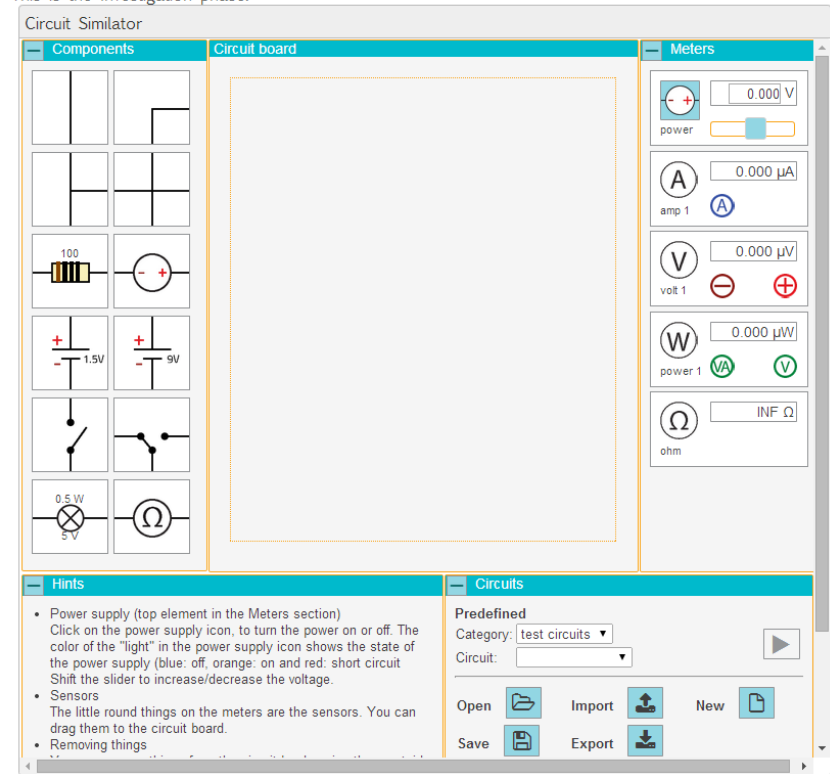
Virtual Lab:
Simulation von
realen Labs.

Electricity lab

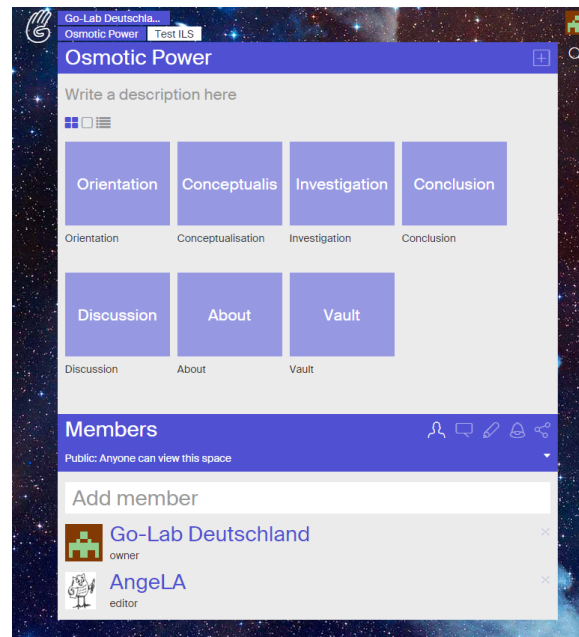
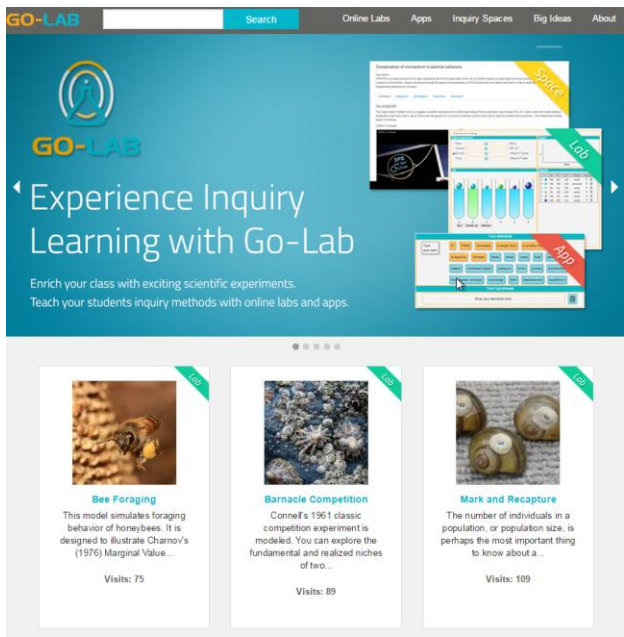
Create electrical circuits and measure voltages and currents. The circuits are limited to static situations.

Orientation Conceptualisation **Investigation** Conclusion Discussion

This is the Investigation phase.



Go-Lab: ein zentraler Einstiegspunkt



Inventar
Apps, Labs, Templates
finden



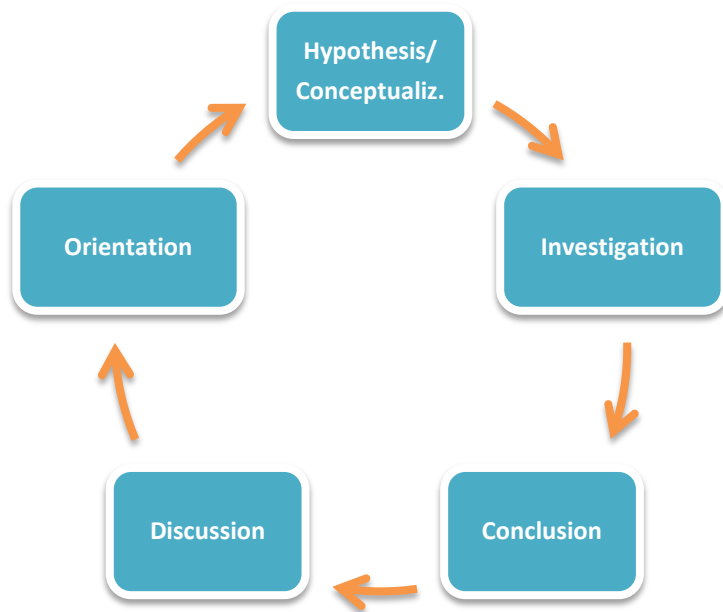
Authoring
Inquiry Learning Space
erstellen



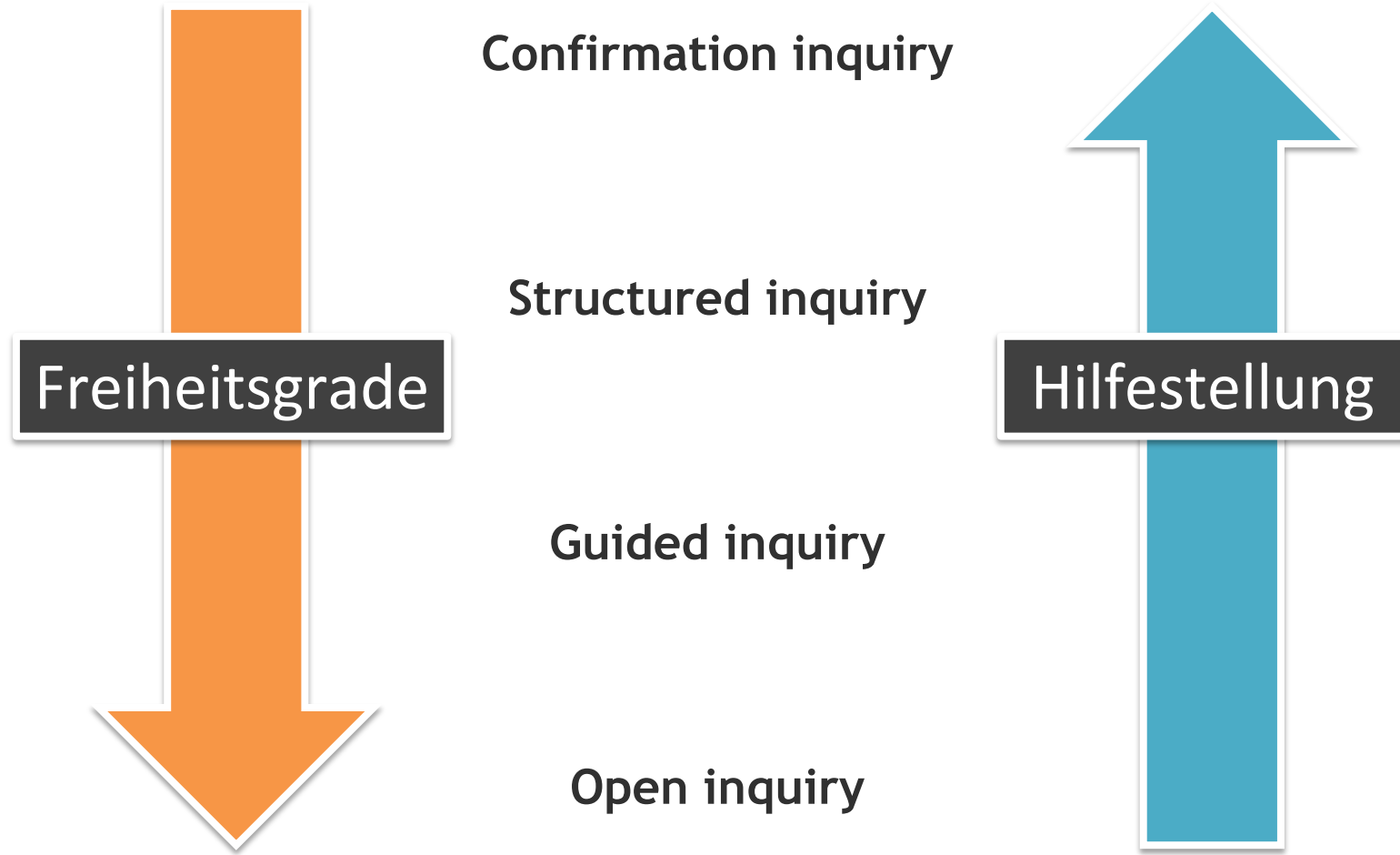
Ausführen
Inquiry Learning Space
verteilen

Inquiry Learning

- Lernen ist an wissenschaftlichen Erkenntnis-Prozessen orientiert.
- Schülerinnen und Schüler versetzen sich in die Rolle von Forschern.

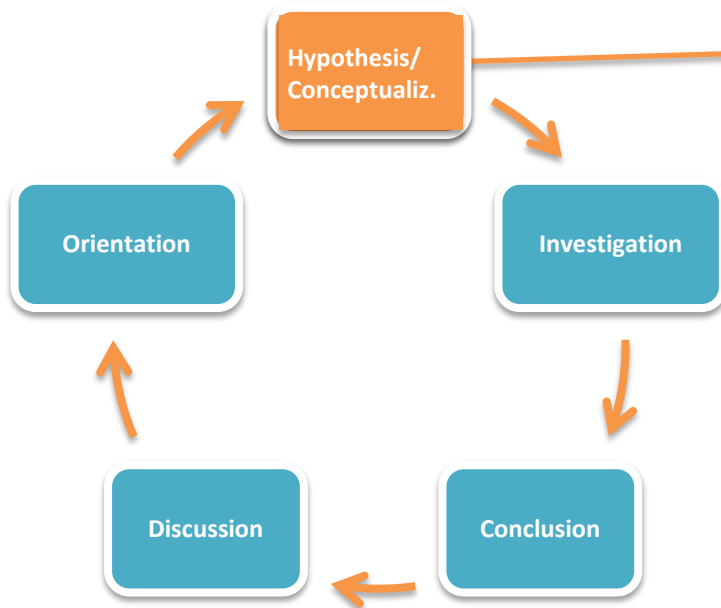


Regulation des Inquiry-based learning



Inquiry Learning im Go-Lab Portal

- Abbildung des Inquiry Cycle auf Phasen im Portal



- Scaffolds (Apps) unterstützen Aktivitäten in den Phasen.

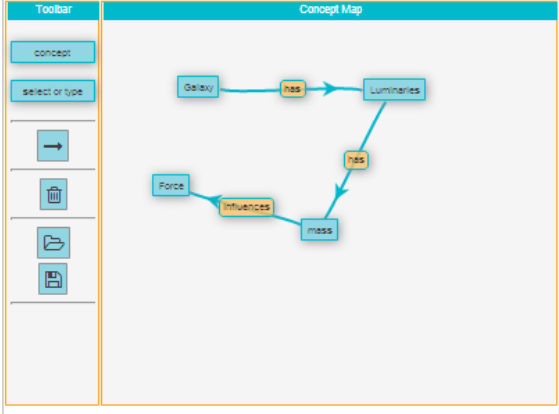
The Faulkes Telescope Project Hello Avall

The Faulkes Telescope Project is an education partner of Las Cumbres Observatory Global Telescope Network (LCOGTN). Our aim is to provide free access to robotic telescopes and a fully supported education programme to encourage teachers and students to engage in research-based science education. Access to our resources and those of our partners is provided at no charge to teachers and students. We provide access to the robotic telescope for all schools in the UK and Ireland and limited access to telescope time for schools outside of this region. All users have unlimited access to the data and image archives, from where they can download data. LCOGTN operates a network of research class robotic telescopes. Currently there are two telescopes, one in Hawaii and the other in Australia. These telescopes are available to teachers for them to use as part of their curricular or extra-curricular activities and are fully supported by a range of educational materials and a team of educators and professional astronomers. http://www.faulkes-telescope.com/resources/videos/ft-lcogt_introduction

Orientation Conceptualisation Investigation Conclusion Discussion

Please structure your knowledge using the concept mapping tool below. After that design your experiment on galaxy collision by drawing hypotheses in the hypothesis scratchpad.

Concept Mapping Tool



Hypothesis Scratchpad

Hypothesis Scratchpad v1.1

Your Items

IF THEN increases decreases is larger than is smaller than is equal to remains

floats sinks mass fluid density volume weight immersed object pressure

Type your own:

force gravity acceleration Archimedes principle submerge float displacement

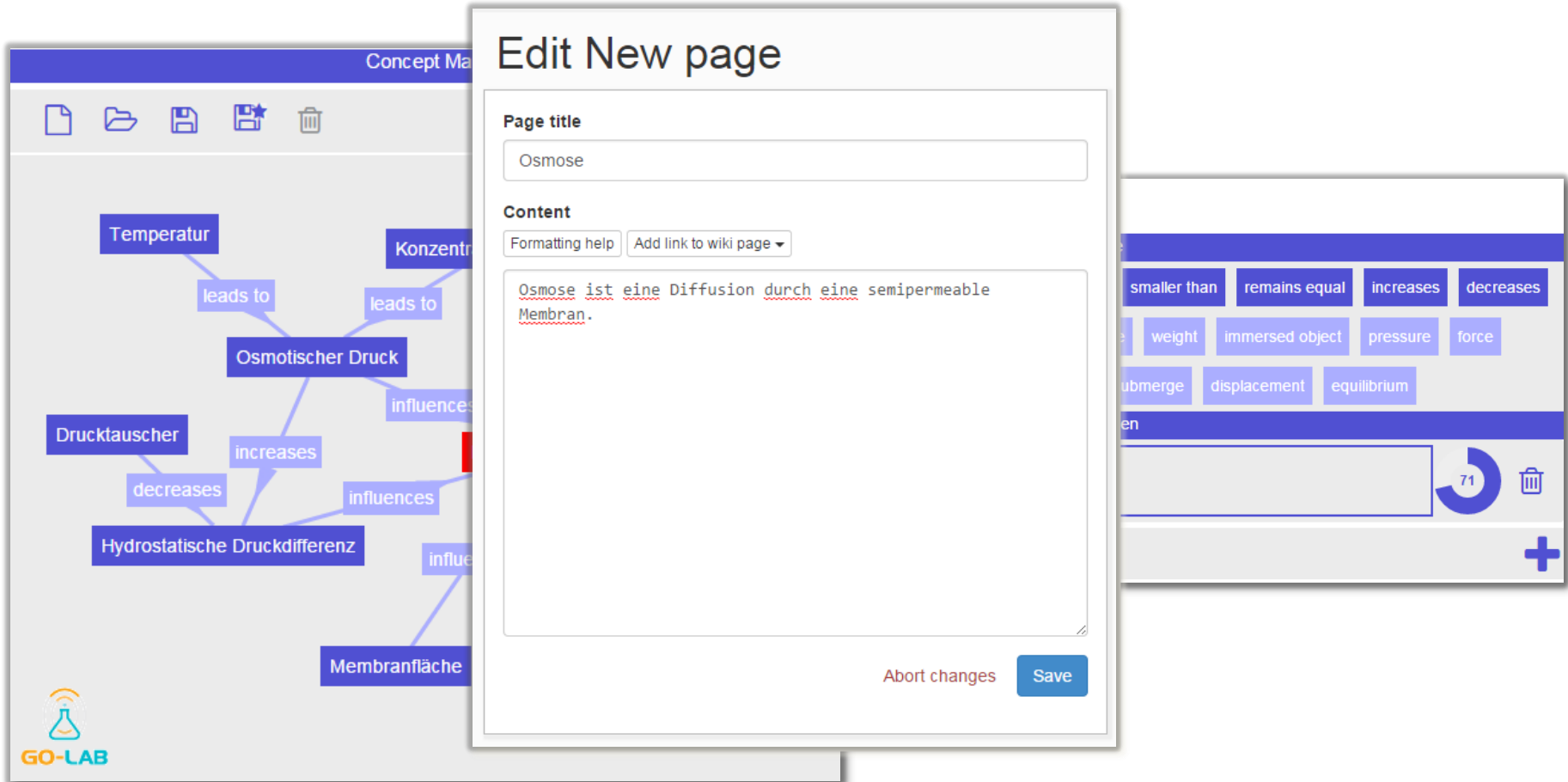
equilibrium

Your hypotheses

Drop and arrange your items here.

Guided Inquiry

- Unterstützung ist wichtig! → Scaffolds (Apps)



The image displays three overlapping windows from a Go-Lab application:

- Concept Map:** A mind map centered on 'Osmotischer Druck'. It includes terms like 'Temperatur', 'Konzentration', 'Drucktauscher', 'Hydrostatische Druckdifferenz', and 'Membranfläche', connected by relationship labels such as 'leads to', 'increases', and 'influences'.
- Edit New page:** A dialog box for creating a new page. The 'Page title' is 'Osmose'. The 'Content' field contains the text: 'Osmose ist eine Diffusion durch eine semipermeable Membran.' Below the text are 'Abort changes' and 'Save' buttons.
- Word Bank:** A panel with various scientific terms in blue boxes, including 'smaller than', 'remains equal', 'increases', 'decreases', 'weight', 'immersed object', 'pressure', 'force', 'submerge', 'displacement', and 'equilibrium'.

Reflexion



- ... über den Lernprozess und das Inquiry-Learning
- ... über eigene Wissens-Artefakte/Lernobjekte
- ... durch Selbst-

Befragung

Reflection Poll

Rate your motivation.

The inquiry learning space helped you to learn.

You could observe that you were able to apply your knowledge learned from class and you were able to solve problems.

Strongly disagree Disagree Neutral Agree Strongly agree

How was it for you to accomplish the tasks without the help of others?

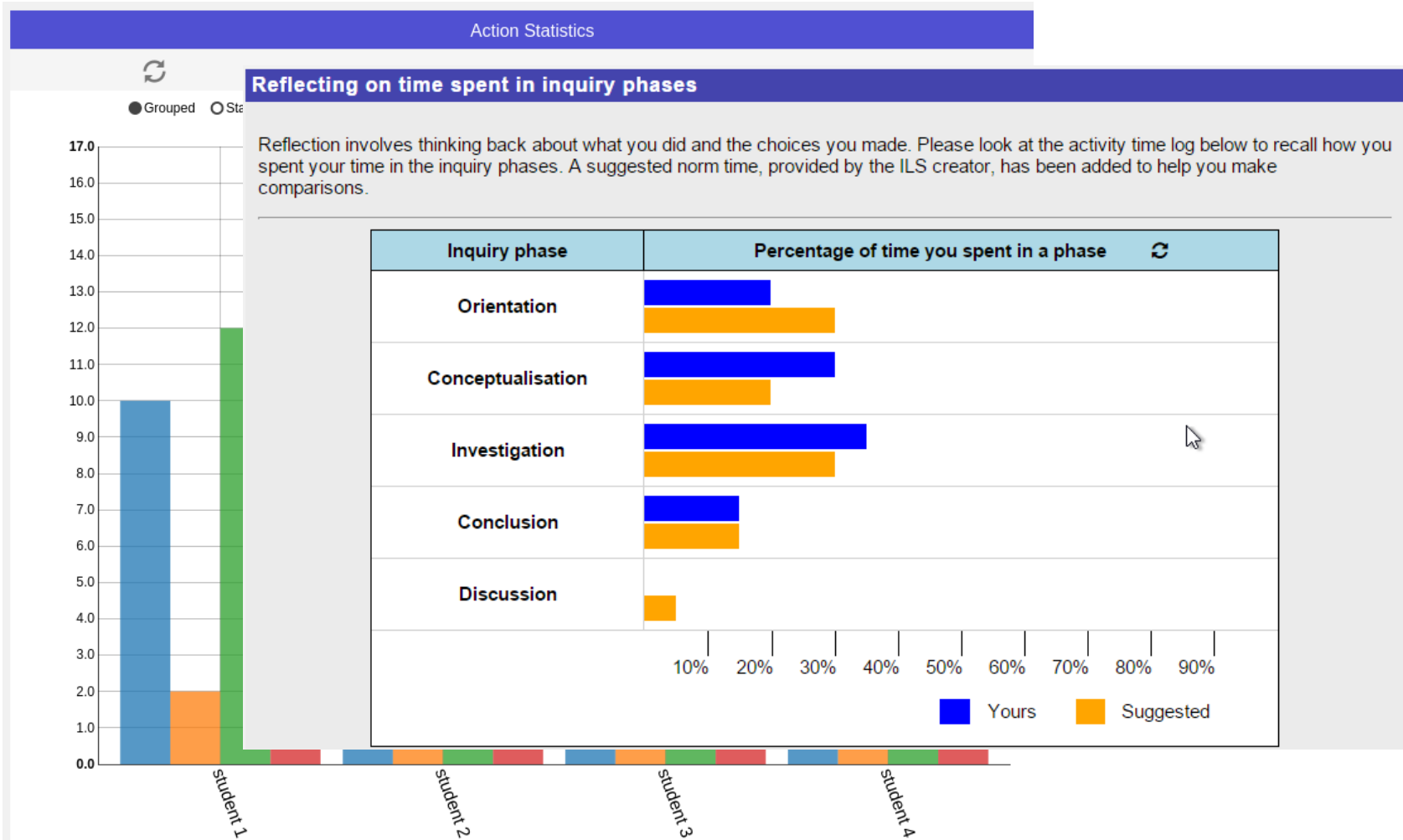
Type your text in here ...

What did you think were the most interesting parts? (multiple items can be selected)

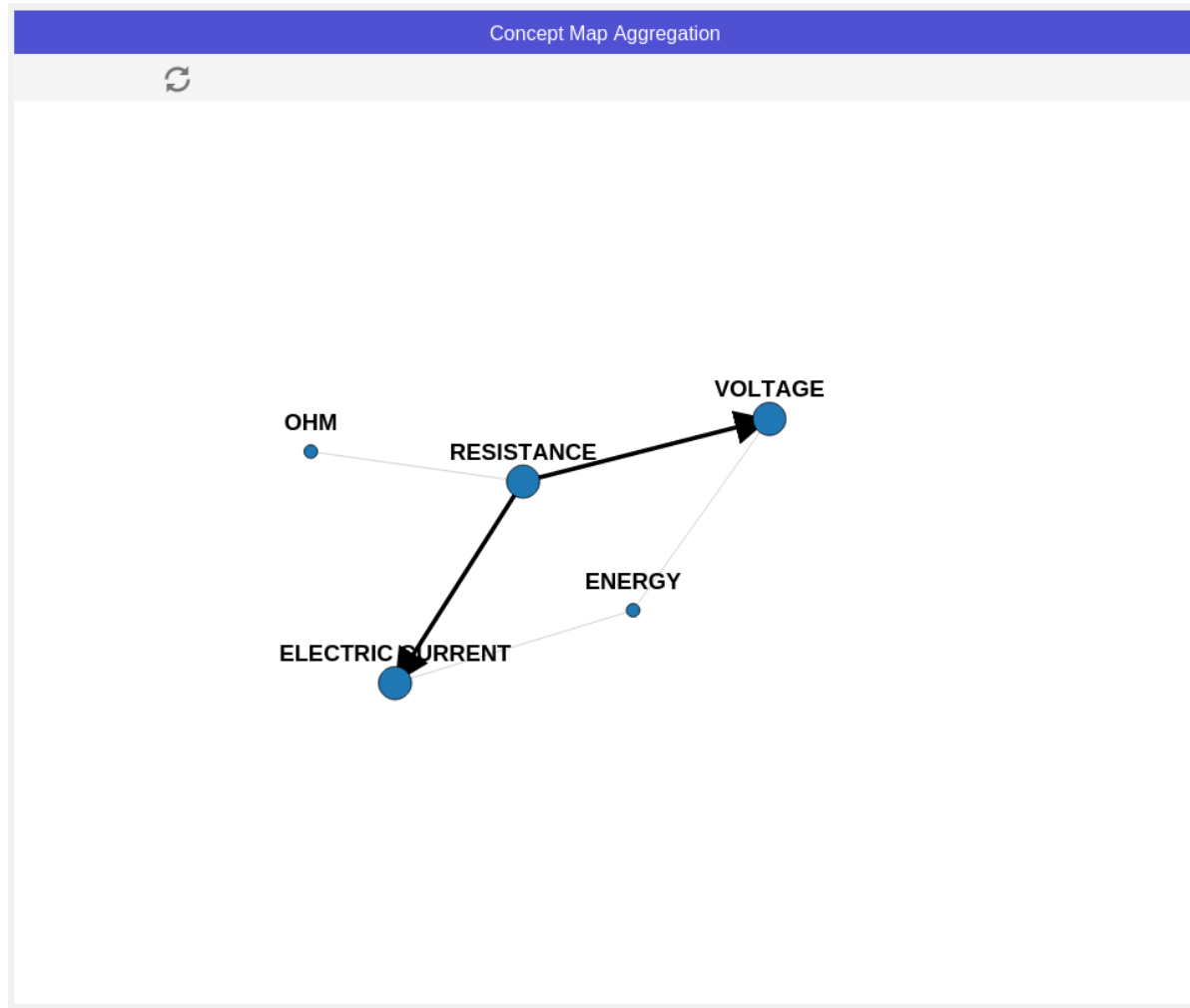
Conduction of experiments with the labs

Alignment on case examples

Aktivitäts-Statistiken



Concept-Map Aggregation



Kontakt



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Go-Lab Projekt-Seite:

<http://www.go-lab-project.eu/>

Unsere Forschungsgruppe:

<http://www.collide.info/>