

TINKERING AS METHOD IN ACADEMIC TEACHING

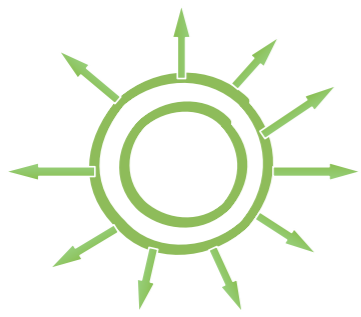
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What is tinkering?

What is the contribution of tinkering in engineering and science?

How to set up tinkering in (academic) teaching?

Examples and experience



starting seemingly undirected

curiosity driven



playful

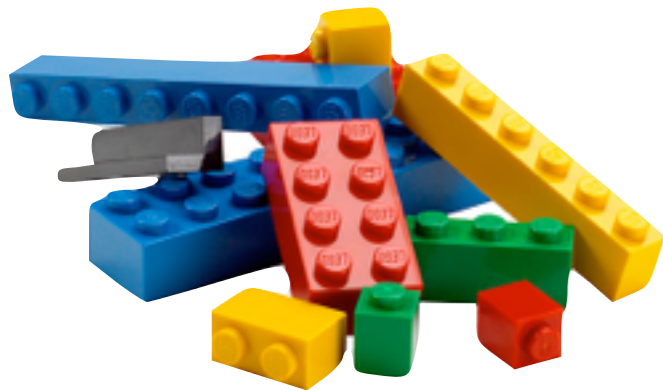


define own challenges and goals

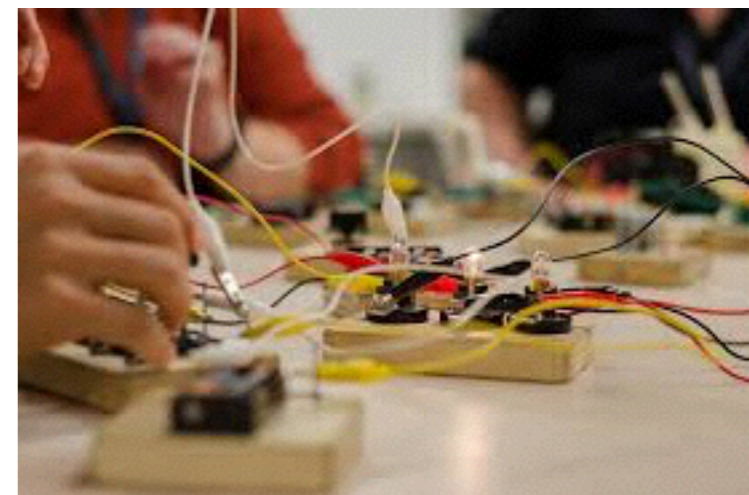
tinkering

explore materials, concepts & methods

building prototypes



iterative



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Examples and experience



Quality Criteria of



Science

truth
universality
theoretic consistence
coherence
simplicity
empirical adequacy

Engineering



practical success
applicability
reliability
effectiveness
efficiency

Hands on
Knowledge

Reflection

Use technology
for new
applications

Raising
questions

Tinkering: Contribution in Academic Teaching

Increase of
personal
toolbox

Problem
framing

Making
design
decisions

What is tinkering?

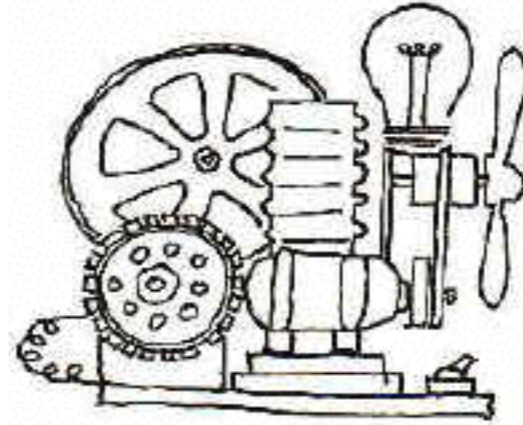
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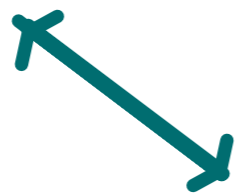
Examples and experience



seed



design
goal



toolbox

seed

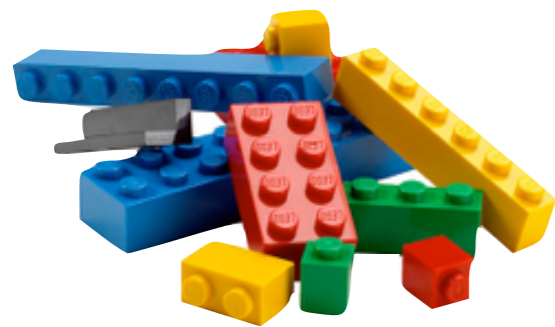


starting point
& catalyst



examples for
beginners

material,
building blocks



(new) technology

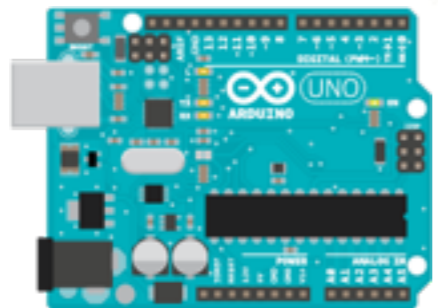
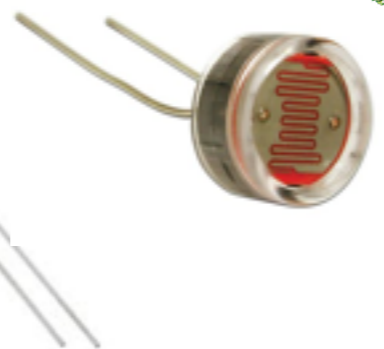
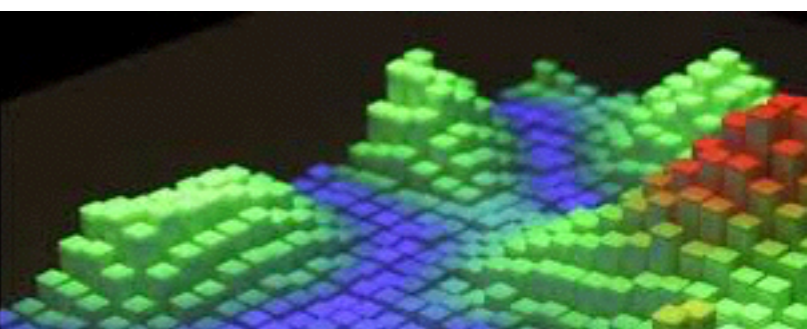
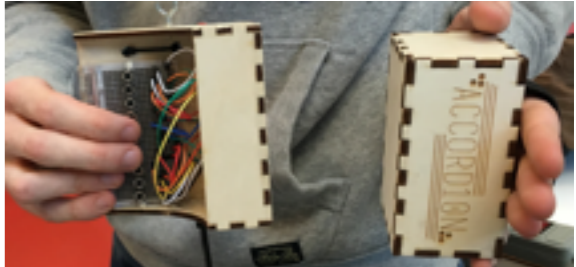


concept, method

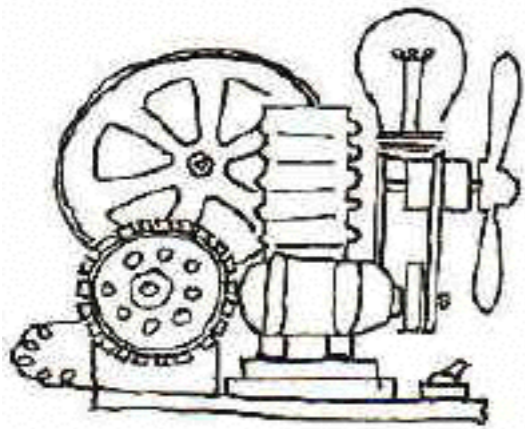


facilitator

toolbox



goal

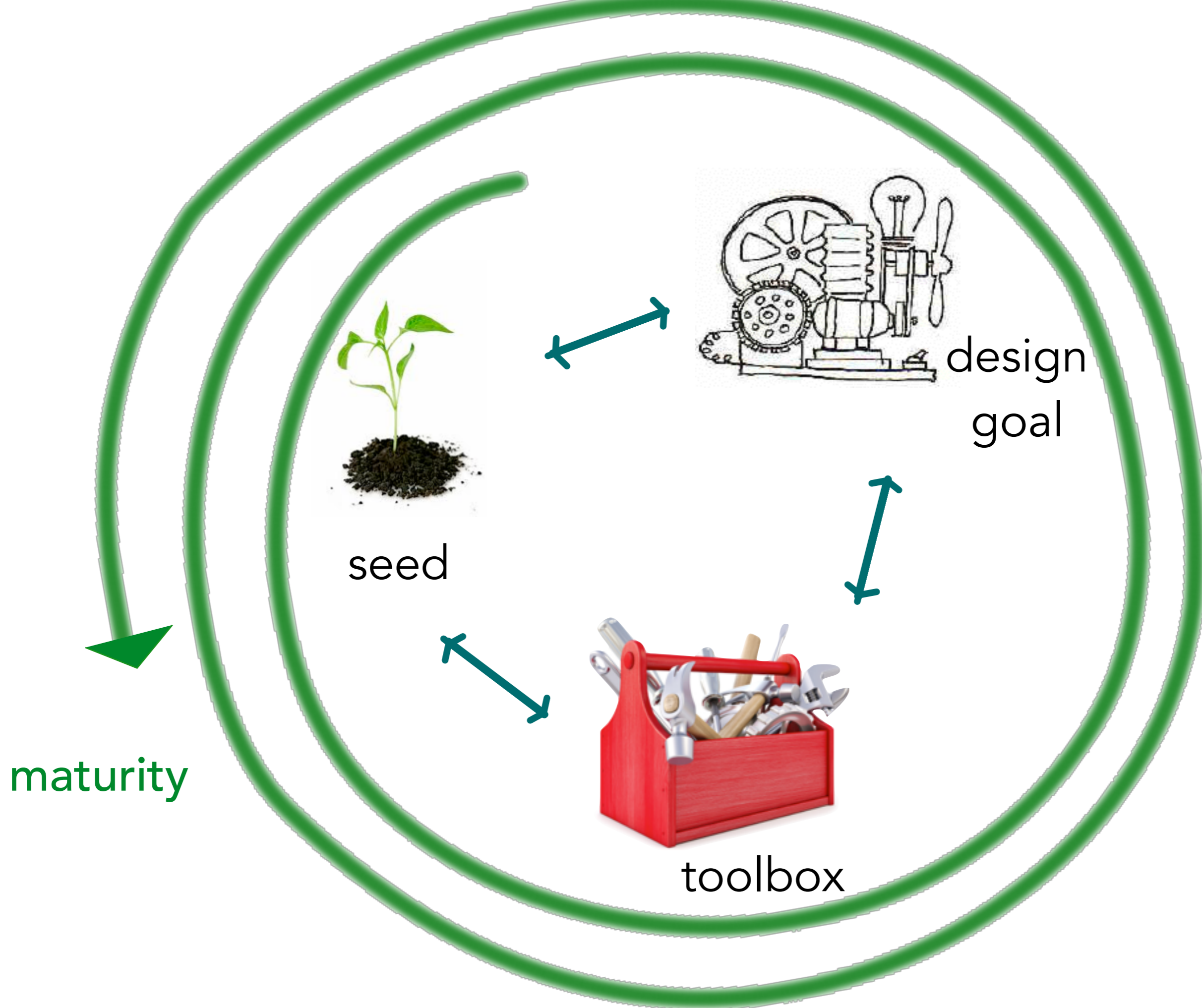


define own problem

badly framed problem

open teacher's problem

assignment



environment



group context



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Examples and experience

programming1 & 3

programming and physical computing

wearables on wednesdays

inflatables workshop

tinkering

has a contribution to academic education

when setting up tinkering teaching,
seeds, toolbox, and the design goal have
to be addressed.

cannot be learnt in one single workshop

questions?