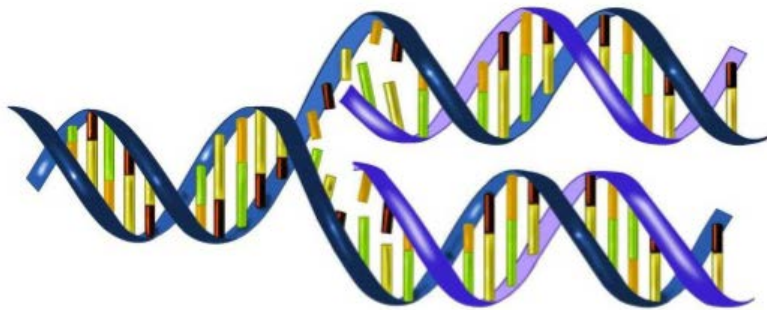
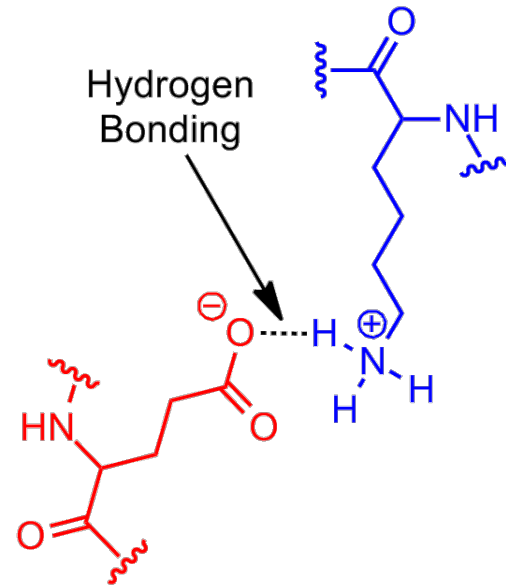


Exploring misconceptions as a trigger for enhanced student learning



<http://www.slideshare.net/mazz4/dna-replication-42836240>



[https://en.wikipedia.org/wiki/Salt_bridge_\(protein_and_supramolecular\)](https://en.wikipedia.org/wiki/Salt_bridge_(protein_and_supramolecular))

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Why do they have them and why do we care?

Naïve simplistic view

Assumptions due to a rote learning approach

Assumptions based on half-remembered facts - including 'lazy' language

Subjective experience does not agree with scientific fact

Teleological thinking

Essentialist thinking

Anthropocentric thinking

Why do they have them and why do we care?

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We care about student misconceptions because they inhibit the students ability to:

- apply knowledge to new situations
- assimilate new concepts

How to change an entrenched but incorrect 'understanding'?

Changing your mind is hard work

What approaches work?

Simulation

Refutational

Student-centred

Active learning

Peer-led learning

ConceptTest

Problem-based learning

Biochemistry

Molecular
Biology

Concept inventory
leading into a
tutorial

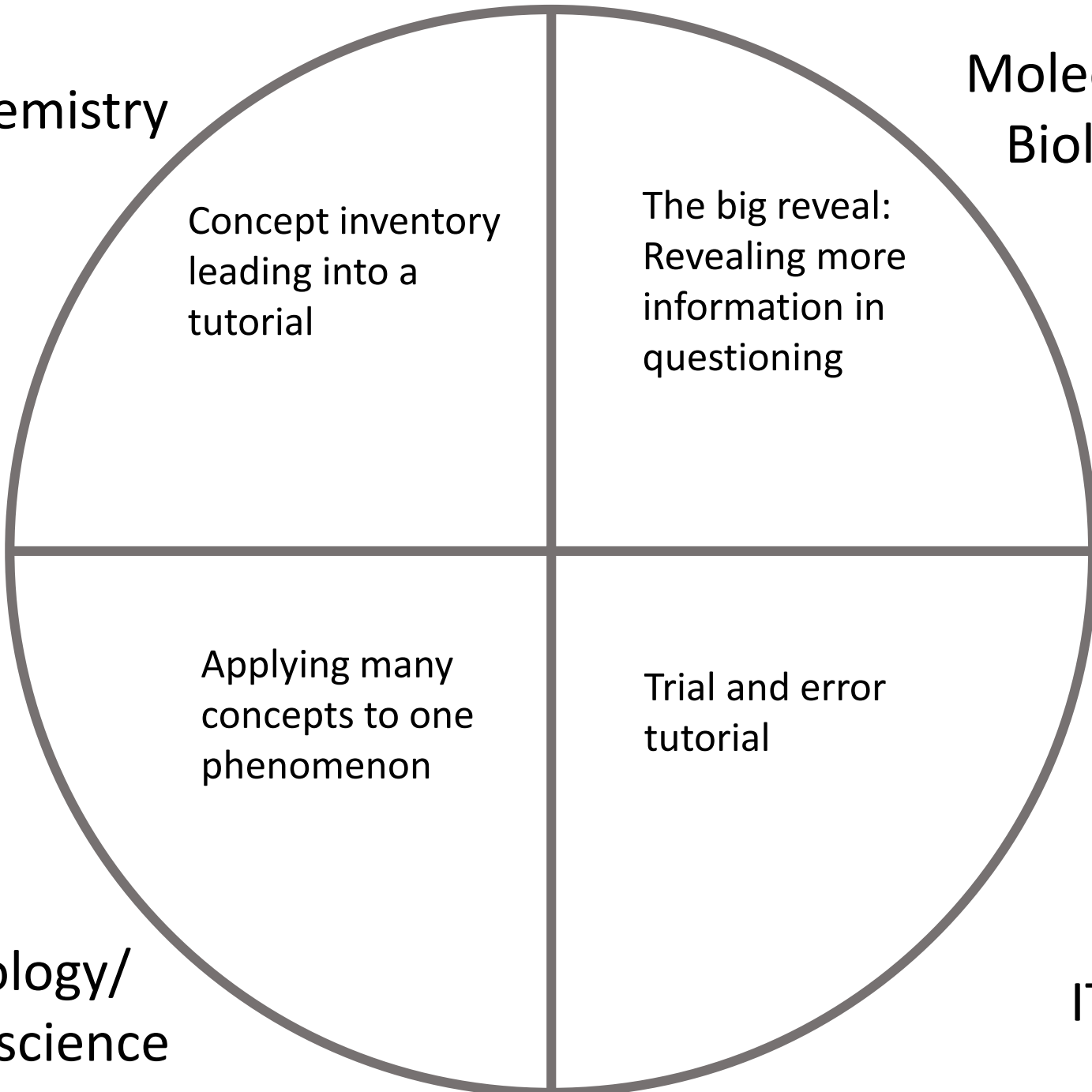
The big reveal:
Revealing more
information in
questioning

Applying many
concepts to one
phenomenon

Trial and error
tutorial

Psychology/
Neuroscience

IT



Learning and Teaching Grant 2016

Exploring misconceptions as a trigger for enhancing student learning

Different disciplines within STEM have different challenges – can we develop an approach that can be applied in many different teaching situations?



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Allen Espiñosa



Kristine Elliott



Jason Lodge

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