kosten
1. die Kosten (pl.)
2. kostbar

krank
1. die Krankheit, —, en

magnificent
1. magnificent

splendid
1. splendid

globose
1. globose

kennen
1. kennen-gekannt
2. kennen-lernen
3. kennen
4. kennengelernt

think
1. denken
2. denken
3. denken
4. denken

cow

das Kind, —, en
der Kellner, —, —
der Keller, —, —
35% retained after 1 week
we only guarantee they’ll pass the test
assessment focused on ranking and classifying, not on developing 21st century skills
purposes
purposes

problems
purposes
problems
improvements
how many different purposes of assessment can you think of?
1. rate students
2. rate professor and course
3. motivate students to keep up with work
4. provide feedback on learning to students
5. provide feedback to instructor
6. provide instructional accountability
7. improve teaching and learning
1 purposes
2 problems
inauthentic tests

1 purposes
2 problems
what is the meaning/definition of...?
inauthentic problem solving
1 purposes
2 problems

problem
1 purposes  
2 problems

problem
outcome

EDUCACION
problem

outcome

1 purposes

2 problems
1 purposes

2 problems

problem → solution → outcome

KNOWN
1 purposes

2 problems
1. purposes
2. problems
1  purposes
2  problems
1. purposes
2. problems

- REMEMBERING
- UNDERSTANDING
- APPLYING
- ANALYZING
- EVALUATING
- CREATING

Thinking skills
On a Saturday afternoon, you pull into a parking lot with un-metered spaces near a shopping area. You circle around, but there are no empty spots. You decide to wait at one end of the lot, where you can see (and command) about 20 spaces.
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How long do you have to wait before someone frees up a space?
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How long do you have to wait before someone frees up a space?

Requires:
Assumptions
Developing a model
Applying that model
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How long do you have to wait before someone frees up a space?

Requires:
- Assumptions
- Developing a model
- Applying that model
On a Saturday afternoon, you pull into a parking lot with un-metered spaces near a shopping area. You circle around, but there are no empty spots. You decide to wait at one end of the lot, where you can see (and command) about 20 spaces. **On average people shop for 2 hours.**

How long do you have to wait before someone frees up a space?

**Requires:**

**Assumptions**

- Developing a model
- Applying that model
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Assuming people leave at regularly-spaced intervals, how long do you have to wait before someone frees up a space?

**Requires:**

Assumptions
Developing a model
Applying that model
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Requires:

Assumptions
Developing a model
Applying that model
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How long do you have to wait before someone frees up a space?
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How long do you have to wait before someone frees up a space?

\[ t_{\text{wait}} = \frac{T_{\text{shop}}}{N_{\text{spaces}}} \]
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How long do you have to wait before someone frees up a space?

\[ t_{\text{wait}} = \frac{T_{\text{shop}}}{N_{\text{spaces}}} \]
computers can do this!
purposes

problems
1 purposes
2 problems
grading incompatible with real problem solving
1 purposes
2 problems
isolation

1 purposes
2 problems
We will use spherical coordinates: $0 \leq \theta \leq \pi$, $0 \leq \phi \leq \pi$, $0 \leq r$. The integral is thus:

$$\int_0^\pi \int_0^{2\pi} \int_0^\infty r^2 \sin \theta \, dr \, d\theta \, d\phi$$

$$= \left\{ \int_0^\infty r^2 \, dr \right\} \left\{ \int_0^{2\pi} \sin \theta \, d\theta \right\} \left\{ \int_0^\pi \sin(2\phi) \, d\phi \right\} = 0$$
high-stakes examinations promote cramming

1. purposes
2. problems
information stored in short-term memory
information stored in short-term memory

no retention

no transfer
grades: measure of standing relative to others
grades: measure of standing relative to others
feedback: reflection on what has been learnt
assessment produces a conflict
assessment produces a conflict

couch or judge?

1 purposes

2 problems
conflict resolved by:

objectivity (fairness, reliability)
... but ...

1. purposes
2. problems
only lowest order thinking skills can be judged objectively
and then there is...

- grade inflation
- cheating

1 purposes
2 problems
1. mimic real life

- purposes
- problems
- improvements
open-book exam

1 purposes
2 problems
3 improvements
REMEMBERING
UNDERSTANDING
APPLYING
ANALYZING
EVALUATING
CREATING

1 purposes
2 problems
3 improvements
### Immediate Feedback Assessment Technique (IF AT)

**Name**: Team # 3  
**Subject**:  
**Test #**: 1  
**Total**: 23

**Scratch off covering to expose answer**

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**1. Purposes**

**2. Problems**

**3. Improvements**
focus on feedback, not ranking
objective ranking: a myth

1. purposes
2. problems
3. improvements
2 metrics, 2 results

![Graph showing the relationship between conceptual understanding and final grade.](image-url)
Aristotelian thinkers

1 purposes
2 problems
3 improvements
top performers, broad grade distribution
objectivity or injustice?

1 purposes
2 problems
3 improvements
3 focus on skills, not content
Grant Wiggins and Jay McTighe, *Understanding by Design* (Prentice Hall, 2001)
Traditional approach to course planning

course content

1 purposes
2 problems
3 improvements
Traditional approach to course planning

1. purposes
2. problems
3. improvements

- course content
- assessment
Traditional approach to course planning

Course content determined by content → assessment

1 purposes
2 problems
3 improvements
Backward design

1. purposes
2. problems
3. improvements

desired outcomes
Backward design

1. purposes
2. problems
3. improvements

acceptable evidence -> desired outcomes
Backward design

1 purposes
2 problems
3 improvements

instructional approach
acceptable evidence
desired outcomes
Backward design

1. purposes
2. problems
3. improvements

instructional approach → acceptable evidence → desired outcomes

course defined by outcomes
Backward design

1. purposes
2. problems
3. improvements

instructional approach
acceptable evidence
desired outcomes
course defined by outcomes
resolve coach/judge conflict
1. purposes
2. problems
3. improvements

Use external evaluators.
peer- and self-assessment

1 purposes
2 problems
3 improvements
Calibrated Peer Review

cpr.molsci.ucla.edu

1 purposes
2 problems
3 improvements

Chemical reaction does one of two things to involved substances:

 Increases or decreases energy of the substance

Unrelated, I saw my T.A., Jimmy, kissing dude at party last Friday.

Describe the Law of definite composition (Dalton’s Law): Equilibrium (boring)
Thermodynamics (boring)
Kinetics (wow-chica-wow-wow)

A chemical compound always contains exactly the same proportion of elements by mass.
rethink assessment
For a copy of these slides:

ericmazur.com

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