

Testing of Intellectual Attitudes, Knowledge, and Skills

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- Domains of educational activities
- Cognitive Domains
- Taxonomic Levels
- Application of Bloom's Taxonomy to Competence Tests

Domains of Educational Activities

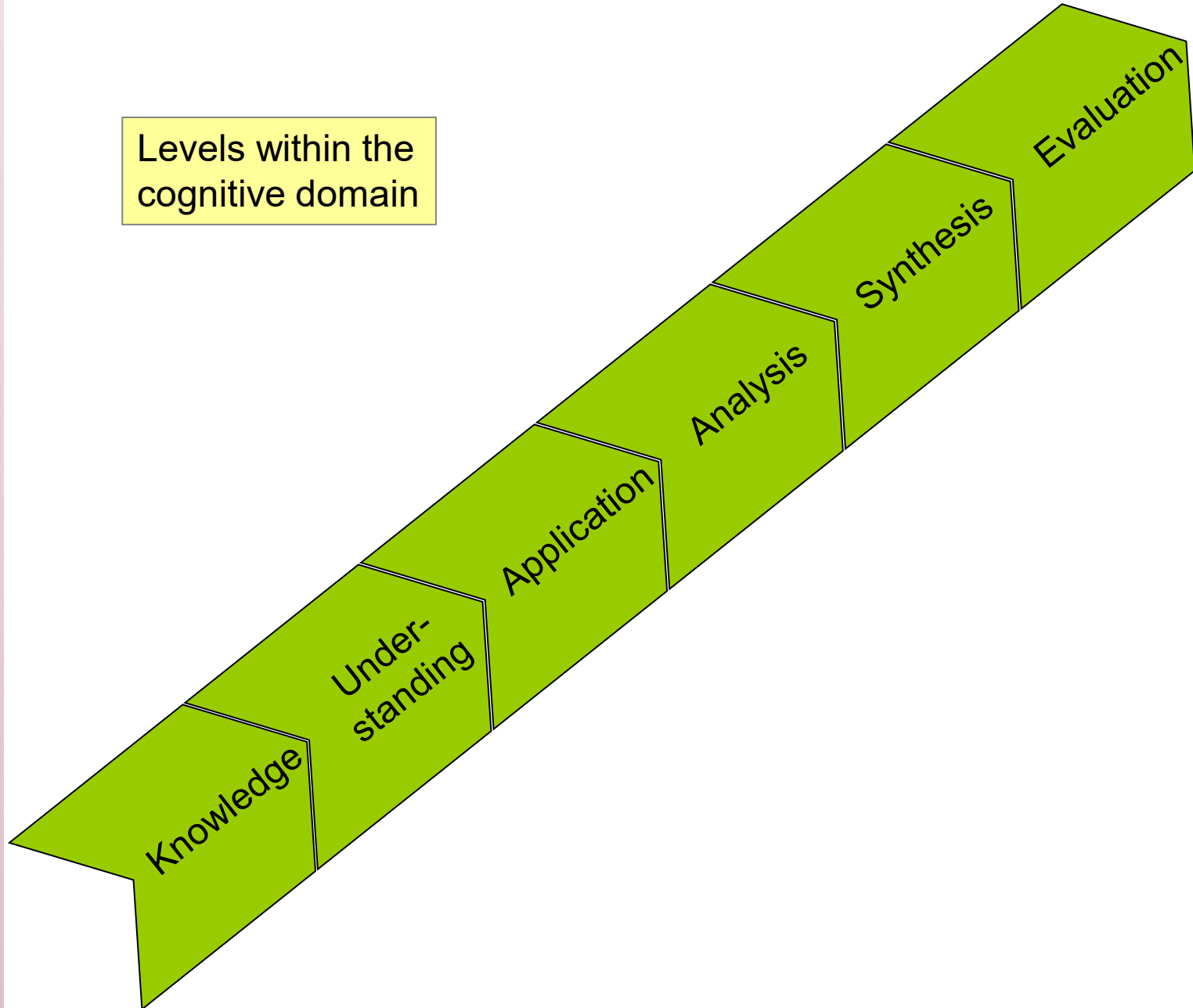
Cognitive: mental skills (*Knowledge*)

Affective: growth in feelings or emotional areas (*Attitude*)

Psychomotor: manual or physical skills (*Skills*)

Bloom's Taxonomy

Levels within the
cognitive domain



Cognitive Domains

Competence

Skills Demonstrated

Knowledge

- **observation and recall of information**
- **knowledge of dates, events, places**
- **knowledge of major ideas**
- **mastery of subject matter**

Comprehension

- **understanding information**
- **grasp meaning**
- **translate knowledge into new context**
- **interpret facts, compare, contrast**
- **order, group, infer causes**
- **predict consequences**

Application

- **use information**
- **use methods, concepts, theories in new situations**
- **solve problems using required skills or knowledge**

Analysis

- **seeing patterns**
- **organization of parts**
- **recognition of hidden meanings**
- **identification of components**

Synthesis

- **use old ideas to create new ones**
- **generalize from given facts**
- **relate knowledge from several areas**
- **predict, draw conclusions**

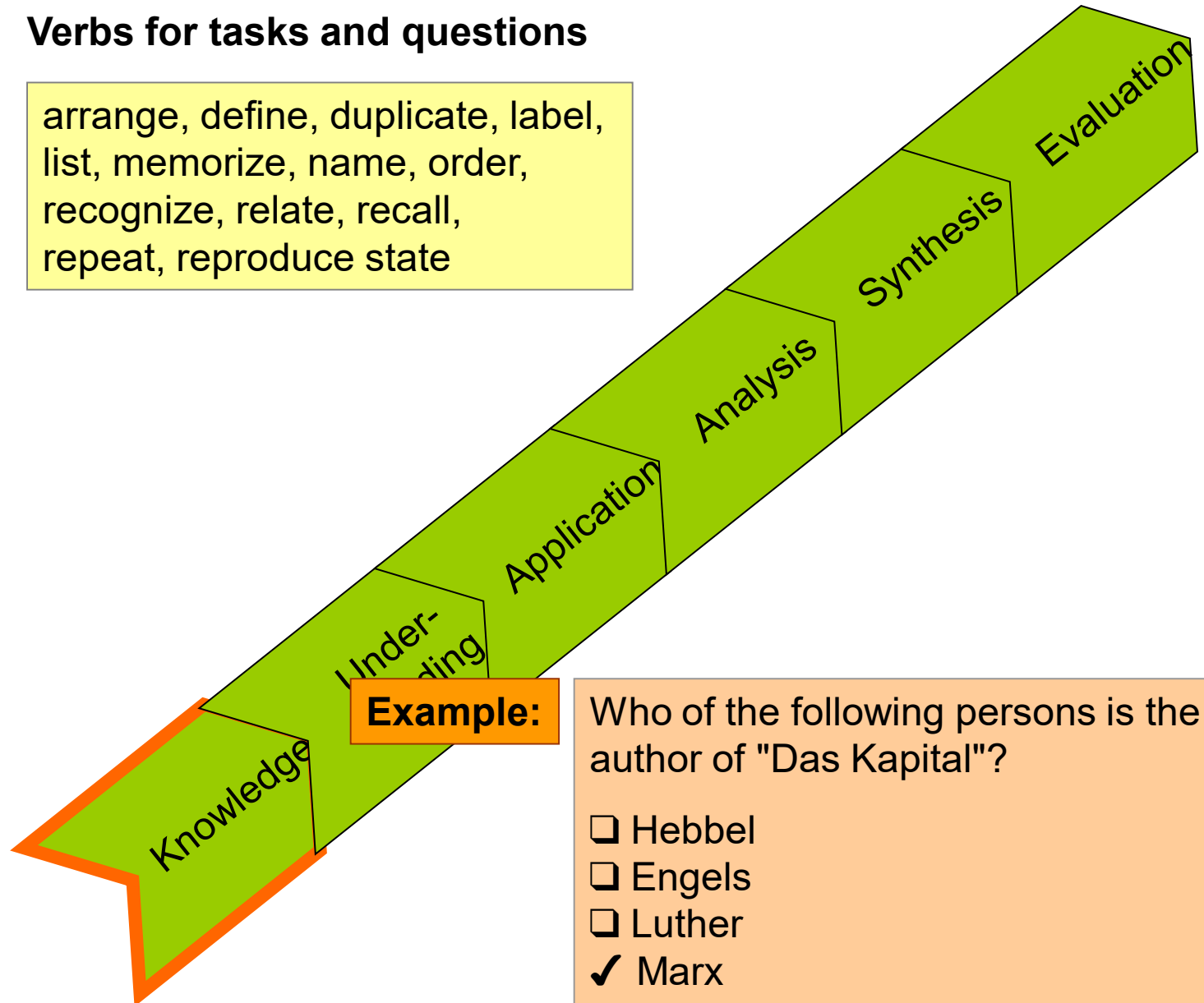
Evaluation

- **compare and discriminate between ideas**
- **assess value of theories, presentations**
- **make choices based on reasoned argument**
- **verify value of evidence**
- **recognize subjectivity**

Testing Knowledge

Verbs for tasks and questions

arrange, define, duplicate, label,
list, memorize, name, order,
recognize, relate, recall,
repeat, reproduce state



Testing Understanding

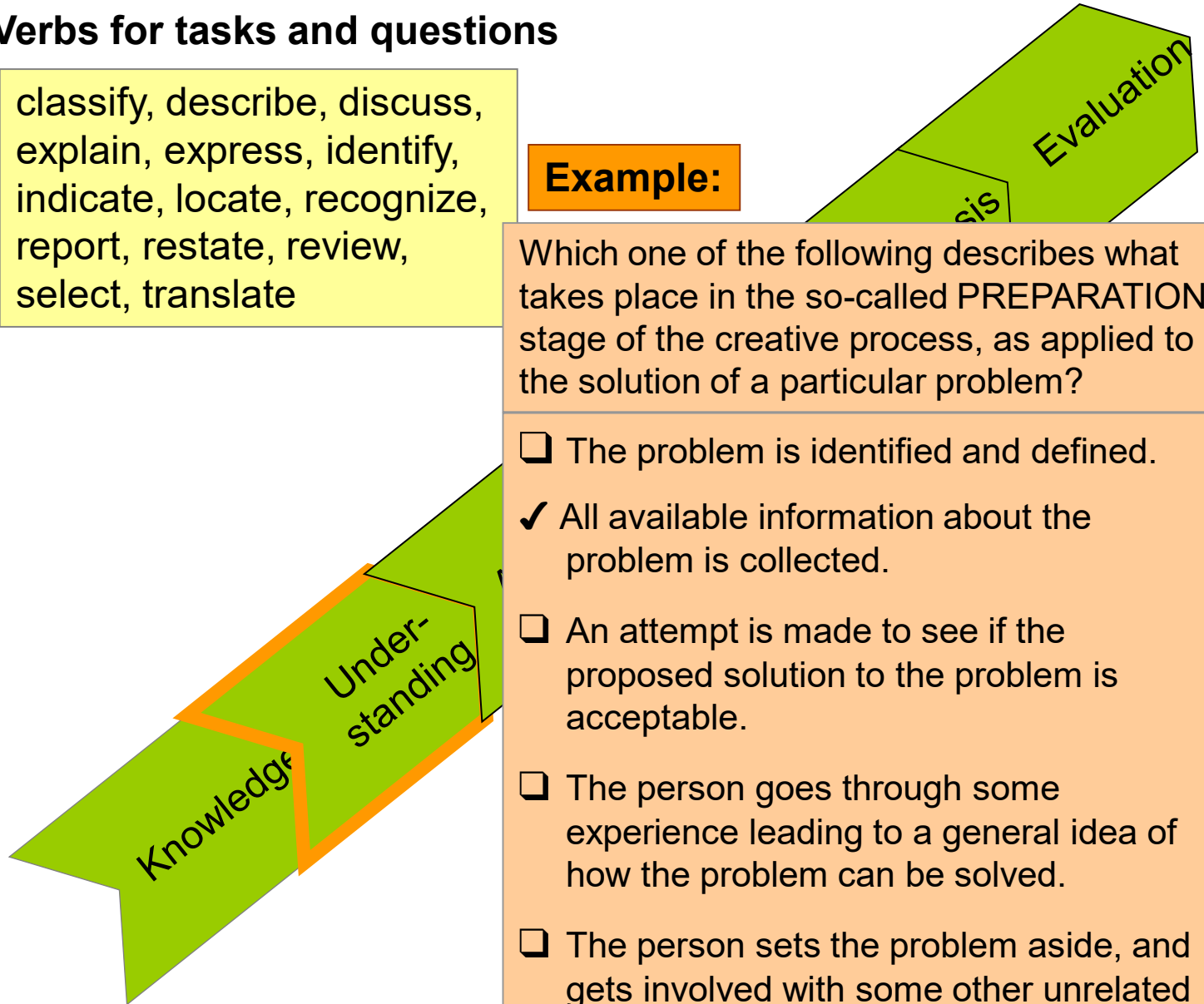
Verbs for tasks and questions

classify, describe, discuss,
explain, express, identify,
indicate, locate, recognize,
report, restate, review,
select, translate

Example:

Which one of the following describes what takes place in the so-called PREPARATION stage of the creative process, as applied to the solution of a particular problem?

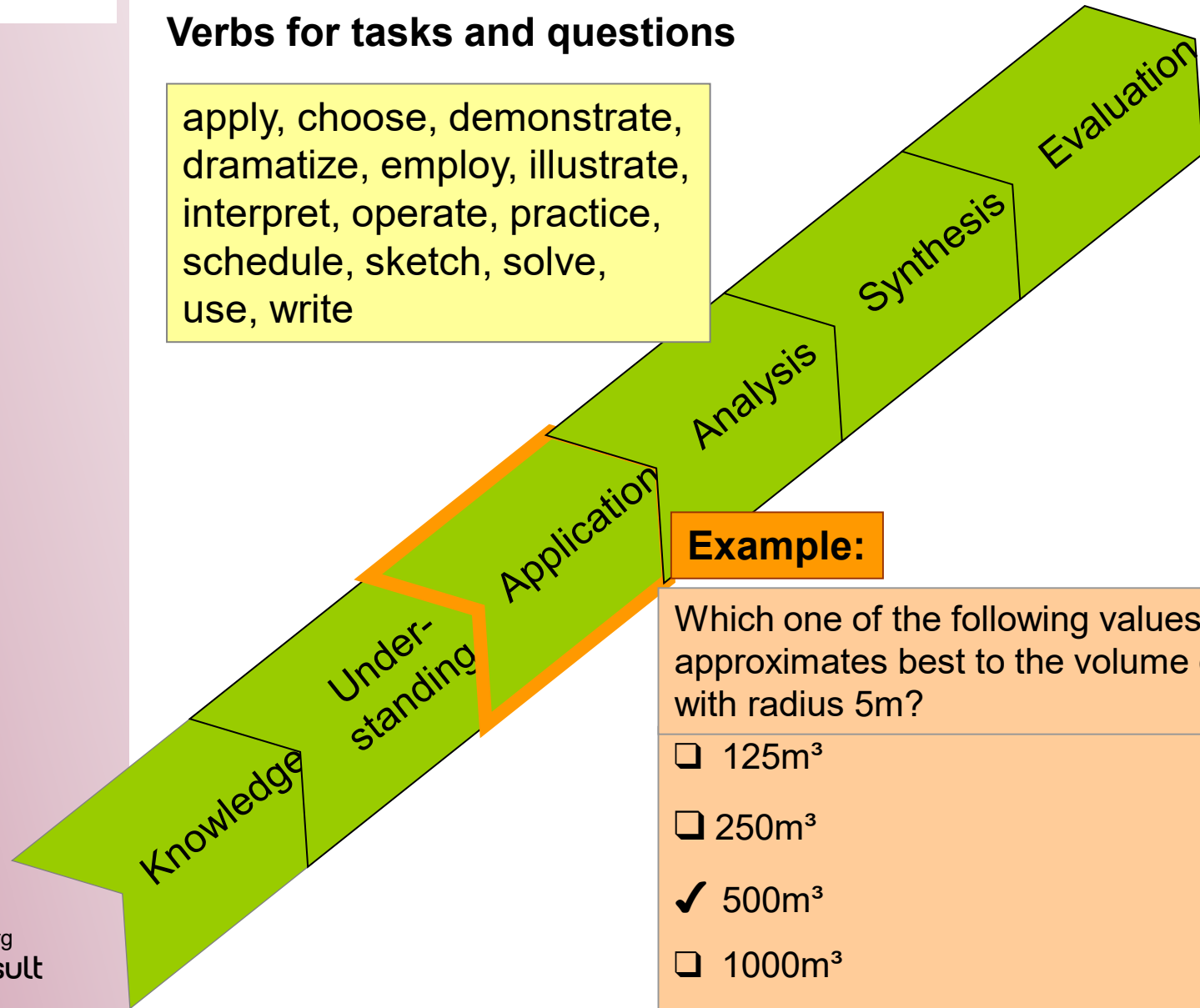
- The problem is identified and defined.
- All available information about the problem is collected.
- An attempt is made to see if the proposed solution to the problem is acceptable.
- The person goes through some experience leading to a general idea of how the problem can be solved.
- The person sets the problem aside, and gets involved with some other unrelated activity.



Testing Application Skills

Verbs for tasks and questions

apply, choose, demonstrate,
dramatize, employ, illustrate,
interpret, operate, practice,
schedule, sketch, solve,
use, write



Example:

Which one of the following values approximates best to the volume of a sphere with radius 5m?

- 125m³
- 250m³
- 500m³
- 1000m³
- 2000m³

Testing Analysis Competencies

Verbs for tasks and questions

analyze, appraise, calculate,
categorize, compare, contrast,
criticize, differentiate, discriminate,
distinguish, examine, experiment,
question, test

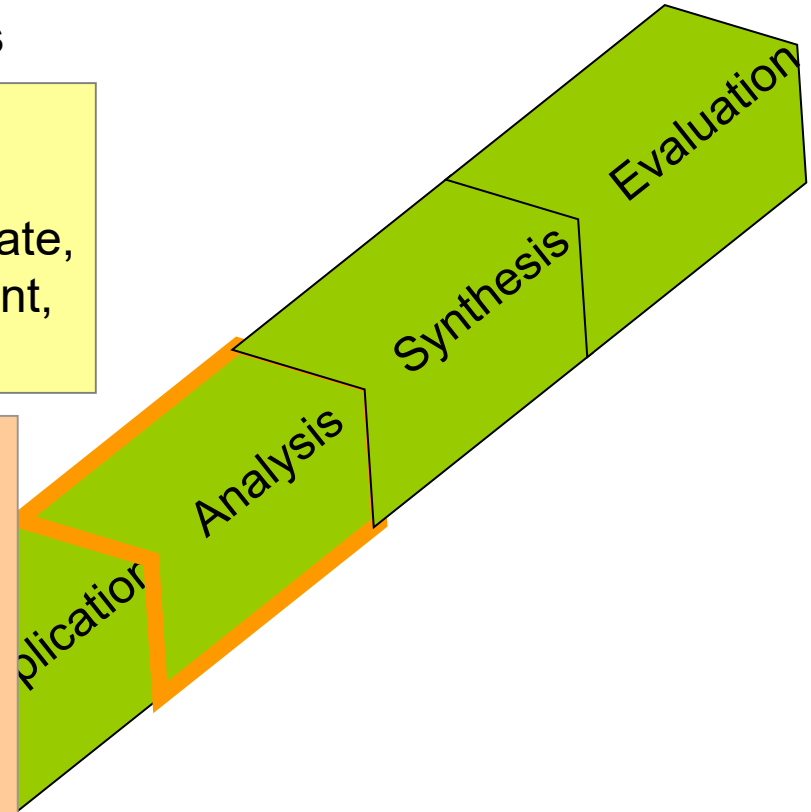
Example:

The passage below illustrates a particular phase of the creative process.

"The story is told of the famous German Organic Chemist Auguste Kékulé who was struggling with the problem of how the six carbon atoms of benzene were linked together. He was getting nowhere with the problem, and one day fell asleep in front of the fireplace while he was pondering on it. He dreamt of molecules twisting and turning around like snakes. Suddenly, one of the snakes swallowed its own tail and rolled around like a hoop. Kékulé woke up with a start, and realized that his problem could be solved if the six carbon atoms of benzene were attached to each other to form a ring. Further work showed that this was entirely correct."

Which creative process is it?

- preparation
- incubation
- orientation
- illumination
- verification



Testing Synthesis Competencies

Verbs for tasks and questions

arrange, assemble, collect,
compose, construct, create,
design, develop, formulate,
manage, organize, plan,
prepare, propose, set up,
write

Example:

Write a small poem on 'Rain'
containing the words

'storm, hair, wet'.

*Keep the poem short; not
longer than 8 lines.*

Spring Rain

by Marchette Chute

The storm came up so very quick
It couldn't have been quicker.
I should have brought my hat along,
I should have brought my slicker.

My hair is wet, my feet are wet,
I couldn't be much wetter.
I fell into a river once
But this is even better.

Testing Evaluation Competencies

Verbs for tasks and questions

appraise, argue, assess, attach,
choose compare, defend estimate, judge,
predict, rate, core, select, support, value,
evaluate.

Example:

Judge the sentence in italics according to the criteria given below:

"The United States took part in the Gulf War against Iraq because of the lack of civil liberties imposed on the Kurds by Saddam Hussein's regime."

- The assertion and the reason are both correct, and the reason is valid.
- The assertion and the reason are both correct, but the reason is invalid.
- The assertion is correct but the reason is incorrect.
- The person goes through some experience leading to a general idea of how the problem can be solved.
- The person sets the problem aside, and gets involved with some other unrelated activity.