Catalyze Your Success

Solidify Knowledge and Improve Your Scores

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Learning strategies

Today’s strategies:

• Teach the material
• Create effective study groups
• Create your own practice exam
• Tips and tricks: exam anxiety
Marzano’s Taxonomy

- Retrieval
- Comprehension
- Analysis
- Knowledge Utilization
Learning Strategy 8: Teach the material

Explain a concept to:
  – Yourself
  – Someone in your class
  – Someone not in the class

This strategy will show you what you don’t know
Learning Strategy 9: Effective study group

1. Choose 3 or 4 group members.
2. Set an agenda:
   - 1-3 minutes: Set session goal
   - 15 minutes: Independently study
   - 15-20 minutes: Group study
   - 15-20 minutes: Independent study
   - 10 minutes: Assess what you know
   - 5-10 minutes: Review & Set goals for next session
3. Set deadlines for assignments
4. Complete tasks before each meeting.
Learning Strategy 9: Effective study group

- Be nice – do not make any derogatory comments about other students and their ideas

- Make sure that everyone participates and gets a chance to offer their thoughts

- Make sure everyone gets listened to (research shows that groups that perform badly almost always fail to listen to each other)

- Don’t interrupt when another student is talking

- Come to class prepared

- Post a welcoming picture in your Zoom profile, especially if you can’t have your video on
Learning Strategy 10: Create practice problems

> Requires deep knowledge of subject

> Can be a great tool to test yourself by exchanging problems with other students and then comparing answers

> You develop the confidence in your answer without the need of a solutions manual
Let us know what you think!

We would like to give you a space to ask questions and provide suggestions. All responses will be anonymous unless you wish to provide your email so that we can contact you.
Iron helps the body to produce red blood cells. If the amount of iron from our diet is not enough, iron supplements, ferrous sulfate tablets for example, may be prescribed. Mary was taking iron supplement for 60 days. Pharmacist used 22g of FeSO₄·7H₂O to fill out the prescription. How many pills per day did the pharmacist prepare for Mary, if 1 pill contains 200 mg of FeSO₄? Molar mass of FeSO₄ is 152 g/mol, molar mass of FeSO₄·7H₂O is 278 g/mol, melting point of FeSO₄·7H₂O is 147 F.
Dimensional analysis problem

**Given**
- pills for 60 days
- 22g of FeSO$_4$·7H$_2$O
- 1 pill contains 200 mg of FeSO$_4$
- MM FeSO$_4$ (compound B) is 152 g/mol
- FeSO$_4$·7H$_2$O (compound A) is 278 g/mol

**Find**
- How many pills (A) per day?

1) mass (A)/day = 22g/60 days = 366.7 mg/day

2) For 1 pill: mol (B)/pill = mol (A)/pill
   \[\frac{200mg}{152g/mol} = 0.001316 \text{ mol/pill}\]

3) mass (A)/pill = mol/pill \* MM (A)
   \[\text{mass (A)/pill} = 0.001316 \text{ mol/day} \* 278 \text{ g/mol}\]
   \[\text{mass (A)/pill} = 0.366 \text{ g/pill} = 366 \text{ mg/pill}\]

**Answer:** compare 3) and 1) => 1 pill/day
Iron helps the body to produce red blood cells. If the amount of iron from our diet is not enough, iron supplements, ferrous sulfate tablets for example, may be prescribed. Mary was taking iron supplement for 60 days. Pharmacist used 22g of FeSO₄·7H₂O to fill out the prescription. How many pills per day did the pharmacist prepare for Mary, if 1 pill contains 200 mg of FeSO₄? Molar mass of FeSO₄ is 152 g/mol, molar mass of FeSO₄·7H₂O is 278 g/mol, melting point of FeSO₄·7H₂O is 147 F.

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Your own dimensional analysis problem

Given

1 pills per day
60 days
1 pill contains 200 mg of FeSO$_4$

MM FeSO$_4$ (compound B) is 152 g/mol

FeSO$_4$·7H$_2$O (compound A) is 278 g/mol

Find

How many grams of A did the pharmacist use to fill out the prescription?
Your own dimensional analysis problem

**Given**

1 pills per day  
60 days  
1 pill contains 200 mg of FeSO\(_4\)  
MM FeSO\(_4\) (compound B) is 152 g/mol  
FeSO\(_4\)\(\cdot\)7H\(_2\)O (compound A) is 278 g/mol

**Find**

How many grams of A did the pharmacist use to fill out the prescription?

1) Total amount of pills = 1 pill/day * 60 days = 60 pills

2) **For 1 pill:** mol (B)/pill = mol (A)/pill  
\[
\frac{200\text{mg}}{152\text{g/mol}} = 0.001316 \text{ mol/pill}
\]

3) mass (A)/pill = mol/pill * MM (A)  
\[
\text{mass (A)/pill} = 0.001316 \text{ mol/day} \times 278 \text{ g/mol} = 0.366 \text{ g/pill} = 366 \text{ mg/pill}
\]

**Answer:** compare 3) and 1) => 0.366 g/pill * 60 pills = 22 grams
Test anxiety

> studies show that stress can lead to short-term memory loss and impede long-term memory retrieval (Frodl & O`Keane, 2013; Kim, Lee, Han, Packard 2001; Phelps 2004)

> how to reduce anxiety and build confidence?

> let`s see what the connection between emotions and motivation is
Connection between emotions and motivation

Increased **motivation** → Increased learning

Positive **emotions** → Increased success
What affects motivation?

> **Value.** How important do I find this goal?

> **Nature of the environment.** Do I feel supported?

> **Belief in the ability to succeed.** Do I feel I can design and follow a course of action to meet this goal?
How to improve motivation?

> use learning strategies to build academic success
How to improve motivation?

> use learning strategies to build academic success
> cultivate a mindset that your intelligence can grow
How to improve motivation?

> cultivate a mindset that your intelligence can grow

“Fixed” Mindset

I'm not good at this.
I give up.
It's just good enough.
This is too hard.
Who am I to be smart, talented ... ?
My plan failed. It's over.
Why can't I do it like [someone else you admire]?

“Growth” Mindset

What am I missing?
I'll use a different strategy.
Is this my best work?
This may take some time.
Who am I not to be?
There's always a Plan B.
What do they know that I don't know? I will learn from them.
How to improve motivation?

> use learning strategies to build academic success
> cultivate a mindset that your intelligence can grow
> engage in positive, healthy self-talk
How to improve motivation?

<table>
<thead>
<tr>
<th>AUTOMATIC NEGATIVE THOUGHTS</th>
<th>WAYS TO CHALLENGE NEGATIVE THOUGHTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>I'm a loser</td>
<td>What is a more helpful thought?</td>
</tr>
<tr>
<td>No one likes me</td>
<td>What is another possibility?</td>
</tr>
<tr>
<td>Nobody cares</td>
<td>What would the people who care about me say?</td>
</tr>
<tr>
<td>It's all my fault that she's upset</td>
<td>What is the worst that could really happen?</td>
</tr>
<tr>
<td>I always get in trouble</td>
<td>If my friend had this thought, what would I tell them?</td>
</tr>
<tr>
<td>I shouldn't have made that mistake</td>
<td>Can I be 100% sure this is true?</td>
</tr>
<tr>
<td>Everyone hates me</td>
<td>If the worst really did happen, what could I do to deal with it and who could help me?</td>
</tr>
<tr>
<td>I can't do this</td>
<td>What is the best possible outcome?</td>
</tr>
<tr>
<td>He always tries to get me angry</td>
<td></td>
</tr>
<tr>
<td>I'm a bad person</td>
<td></td>
</tr>
<tr>
<td>Why does this always happen to me?</td>
<td></td>
</tr>
<tr>
<td>I hate myself</td>
<td></td>
</tr>
<tr>
<td>Everyone is always out to get me</td>
<td></td>
</tr>
<tr>
<td>I better not cry</td>
<td></td>
</tr>
<tr>
<td>She always tries to control me</td>
<td></td>
</tr>
<tr>
<td>Now everything is ruined</td>
<td></td>
</tr>
<tr>
<td>I will never be any good</td>
<td></td>
</tr>
<tr>
<td>My life is terrible</td>
<td></td>
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How to improve motivation?

> use learning strategies to build academic success
> cultivate a mindset that your intelligence can grow
> engage in positive, healthy self-talk
> hard to improve external circumstances – easier to work on things that you can control. Attribute positive and negative results to your behavior
How to improve motivation?

> use learning strategies to build academic success
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> hard to improve external circumstances – easier to work on things that you can control. Attribute positive and negative results to your behavior
> know your learning style preferences (visual, auditory, read/write, kinesthetic)
How to improve motivation?

> know your learning style preferences (visual, auditory, read/write, kinesthetic)

[Diagram showing learning styles]

Visual Learners
• Learn best by reading and converting printed material into symbols.

Aural Learners
• Learn best by actively listening to information.

Read/Write Learners
• Learn best by reading and writing information.

Kinesthetic Learners
• Learn best by practical application of the information.

https://nursing.lsuhsc.edu/AcademicSuccessProgram/LearningStyles.aspx
Study strategies for different learning style preferences

Visual Learner
(prefers pictures, charts, diagrams, graphs, etc.)

<table>
<thead>
<tr>
<th>In Class</th>
<th>While Studying</th>
<th>During Exams</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Underline important points</td>
<td>• Underline notes and text</td>
<td>• Recall pictures</td>
</tr>
<tr>
<td>• Highlight with different colors</td>
<td>• Highlight notes and text (in color)</td>
<td>• Draw concept map of essay</td>
</tr>
<tr>
<td>• Use symbols, charts, graphs</td>
<td>• Summarize with images and concept maps</td>
<td>• “Dump” formulas/diagrams</td>
</tr>
</tbody>
</table>
How to improve motivation?

> use learning strategies to build academic success
> cultivate a mindset that your intelligence can grow
> engage in positive, healthy self-talk
> hard to improve external circumstances – easier to work on things that you can control. Attribute positive and negative results to your behavior
> know your learning style preferences (visual, auditory, read/write, kinesthetic)
> get adequate rest, nutrition, and exercise
### Study strategies for different learning style preferences

**EXAMPLE:**

<table>
<thead>
<tr>
<th>Visual Learner</th>
<th>(prefers pictures, charts, diagrams, graphs, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
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<td><strong>While Studying</strong></td>
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### Study strategies for different learning style preferences

#### Aural or Auditory Learner
(prefers hearing information)

<table>
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<tr>
<th>In Class</th>
<th>While Studying</th>
<th>During Exams</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Attend lectures, discussions, and tutorials</td>
<td>• Discuss material in study group</td>
<td>• Listen to inner voice to recall information</td>
</tr>
<tr>
<td>• Tape lecture for later</td>
<td>• Summarize notes, then read out loud</td>
<td>• Talk out question under breath</td>
</tr>
<tr>
<td></td>
<td>• Read onto tape, then listen back</td>
<td></td>
</tr>
</tbody>
</table>
# Study strategies for different learning style preferences

## Reading/Writing Learner
(prefers reading or writing about information)

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<tr>
<th>In Class</th>
<th>While Studying</th>
<th>During Exams</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Create lists and headings</td>
<td>• Identify key words and associate them with details</td>
<td>• Use key words to trigger more complete answers</td>
</tr>
<tr>
<td>• Take complete lecture notes</td>
<td>• Reread notes and text and summarize them in writing</td>
<td>• At the beginning of the exam, write out important lists</td>
</tr>
<tr>
<td></td>
<td>• Reread and summarize old tests</td>
<td>• Essay – write thesis, then outline</td>
</tr>
<tr>
<td></td>
<td>• Answer (in writing) the review questions</td>
<td></td>
</tr>
</tbody>
</table>
Study strategies for different learning style preferences

<table>
<thead>
<tr>
<th>Kinesthetic Learner</th>
<th>In Class</th>
<th>While Studying</th>
<th>During Exams</th>
</tr>
</thead>
</table>
| (prefers moving, touching, visualizing movement, or hands-on activities to learn information) | • Use all senses  
• Participate in labs and field trips | • Trial and error is important – can learn from mistakes  
• Create personal examples  
• Use pictures to illustrate notes  
• Stand, move, walk  
• Study in an exam-like environment | • Remember examples  
• Stretch or move to jog memory |