Orlando Science Center

Session Three



EMPLOYMENT AND TRAINING ADMINISTRATION
UNITED STATES DEPARTMENT OF LABOR

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RNCPI-CBLT Session 3 Folder Contents

Materials Checklist
Session 3 Overview
Session 3 PowerPoint Slides
Session 3 Stimulants/Depressants Worksheet
Session 3 Brine Shrimp Cube Mat
Session 3 Task Cards

Tips/Reminders for a Successful Off-site

1. Get the directions to the school (and reverse directions, if needed).

2. Get the school contact name and phone number.

3. Make sure that you have all materials necessary for the session (see the Materials Checklist).

4. Ask for petty cash for tolls and gas, if needed.

   Receipt Codes:

   915 – DOL
   935 – WCF
   290 – Regular Off-site

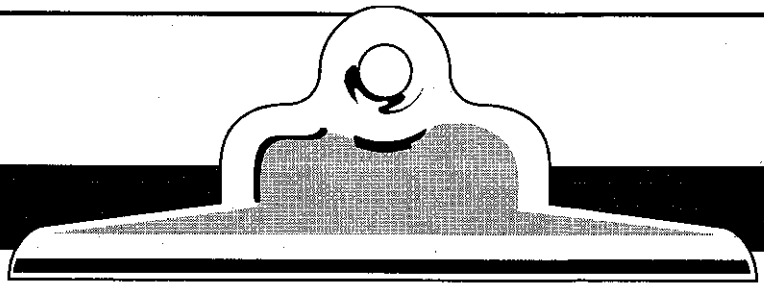
   Write the receipt code on the receipt before submitting to H. Norton.

5. At the end of the session, give the projector time to cool before placing it back in the case. Turn it off as soon as you are finished using it. That should give it ample time to cool off before storing it again.

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Regional Nursing Career Pathway
CBJT
High School
Session 3: Stimulants/Depressants

Name: _____



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Stimulants and Depressants

Stimulant	Depressant
An agent that temporarily arouses vital physiological activity.	An agent that temporarily decreases vital physiological activity.

Trial 1	
Substance:	Hypothesis:
Observation:	

Trial 2	
Substance:	Hypothesis:
Observation:	

Trial 3	
Substance 1:	Substance 2:
Hypothesis:	
Observation:	

Discussion

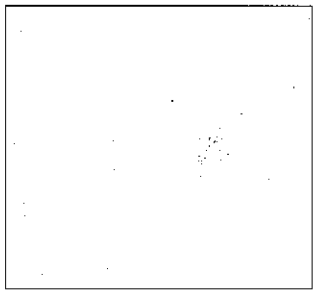
(1) Label each substance as a stimulant or depressant:

Nicotine_____ Epinephrine_____

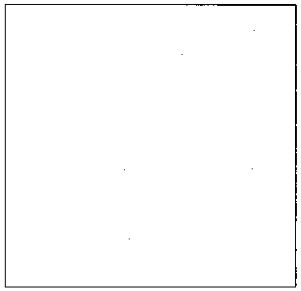
Alcohol_____ Caffeine_____

Stimulants and Depressants

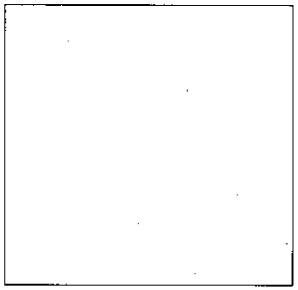
Brine Shrimp Lab



Trial 1



Trial 2



Trial 3

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RNCPI-CBLT Session 3 Instructor Reference Sheets
Materials Checklist & Session Overview

Session 3 Materials Checklist

- ❑ Toshiba Laptop[1]
- ❑ Projector
- ❑ Speakers
- ❑ Exit Surveys (30 copies)
- ❑ Brine Shrimp Worksheet (30 copies)
- ❑ Task Cards (8 sets)
- ❑ Cube Mats (8 sets)
- ❑ Stopwatches (8)
- ❑ Prepared Solutions of the following:[2]
    - Caffeine
    - Epinephrine
    - Nicotine
    - Alcohol
- ❑ Pipettes (2)
- ❑ Digital Microscope
- ❑ Plastic well slide[3] (3)
- ❑ Brine Shrimp[4]

Notes

1. Confirm that the powerpoint and videos are working prior to leaving; and, have the jump drive in the front pocket of the laptop backpack in case of any computer problems.

2. The drugs should be kept in the safety box under lock and key at all times.

3. The plastic well slides are for the digital scope. Use the pipettes to squirt a small amount of water and brine shrimp in the well of the slides for each activity that the students complete. This will give them an up close view of the brine shrimp.

4. The brine shrimp can be obtained in Heather Norton's office.

RNCPI-CBLT Session 3 Instructor Reference Sheets
Materials Checklist & Session Overview

Session 3 Overview

*** Prep cubes and have brine shrimp and drugs easily accessible to instructor before you start.***

Student Learning Objectives

Video: Ambulance RN

Physiological Effects of Drugs

- Brine Shrimp (1 slide)
- Depressants-defined (1 slide)
- Stimulants-defined (1 slide)
- Examples and definitions of drugs used in lab (4 slides)
    - Caffeine
    - Epinephrine
    - Nicotine
    - Alcohol

What's up with Santos?

-Video: lifestyle clip #2

Brine Shrimp lab

- Instructor led, be sure to hand out and collect drug samples after each dosage
- Be sure to hand each group a cube mat; task cards; and worksheet (1 per student)
- While students are being led through lab set up digital scope to display brine shrimp for the class.

Debriefing

- Based on the behavior of the brine shrimp, what can you infer about the effects of stimulants and depressants on heart rate?

Exit Quiz

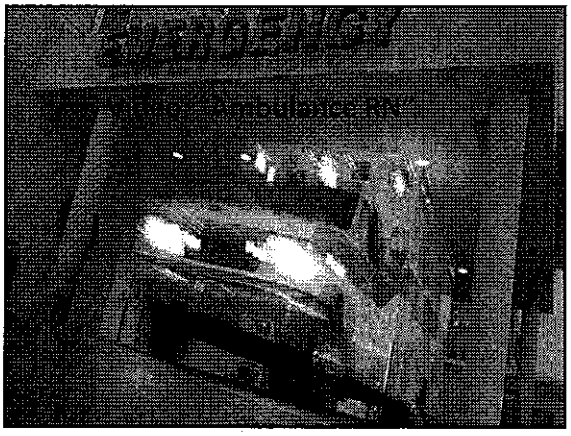
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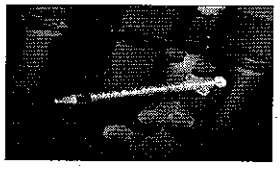
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Student Learning Objectives

- The students will observe the effects of stimulants and depressants on a living organism.
- The students will infer the effects of stimulants and depressants on the cardiovascular system.

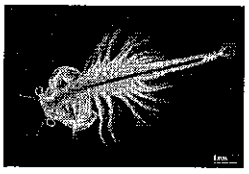


Physiological Effects of Drugs



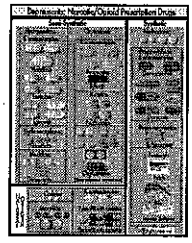
Brine Shrimp

- A primitive crustacean that seldom reaches more than 1/2 inch in length
- Commonly used for fish food in aquariums



What is a depressant?

- An agent, especially a drug, that decreases the rate of vital physiological activities.



Commonly Prescribed Depressants

Hydrocodone
Oxycodone

Vicodin

Percocet

What is a stimulant?

- An agent, especially a chemical agent, that temporarily arouses or accelerates physiological activity.



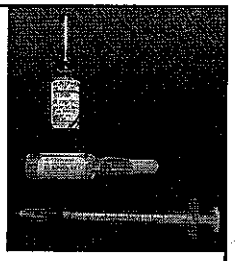
Caffeine

- A bitter white substance often derived from tea or coffee



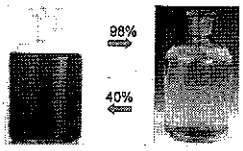
Epinephrine

- This medication is used in emergencies to treat very serious allergic reactions to insect stings/bites, foods, drugs or other substances. Epinephrine acts quickly to improve breathing, jump start the heart, raise a dropping blood pressure, reverse hives, and reduce swelling of the face, lips, and throat.



Nicotine

- Nicotine is an alkaloid poison that occurs in tobacco, and is used in medicine and as an insecticide.



Alcohol

- Alcohol is a clear, psychoactive drink that is made from corn, barley, grain, rye, or a beverage containing ethyl.



What's up with Santos?

Lifestyle clip #2

Debriefing

- Based on the behavior of the brine shrimp, what can you infer about the effects of stimulants and depressants on heart rate?

EXIT QUIZ

RNCPI-CBLT Session Three Task Cards

Stimulants and Depressants

Trial 1

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Brine Shrimp Trial 1

1. With the lids off, place two cubes on the cube mat in the boxes marked Trial 1 and Trial 2.
2. Wait for an instructor to call your group to receive a sample of brine shrimp for the cube in the Trial 1 box on your mat.
3. When you receive the brine shrimp, immediately cover the cube with the lid and place the cube back on the Trial 1 box on your mat.
4. On your worksheet, complete the *Substance* and *Hypothesis* sections under Trial 1.
5. When instructed to do so, place 3-5 drops of alcohol in the Trial 1 cube.
6. Observe the behavior of the brine shrimp for at least one minute. Then write your observations in the *Observation* section of Trial 1 on your worksheet.
7. You should also observe the brine shrimp on the instructor's digital microscope for a view of the brine shrimp at higher magnification.

RNCPI-CBLT Session Three Task Cards

Stimulants and Depressants

Trial 2

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Brine Shrimp Trial 2

1. Wait for an instructor to call your group to receive a sample of brine shrimp for the cube in the Trial 2 box on your mat.
2. When you receive the brine shrimp, immediately cover the cube with the lid and place the cube back on the Trial 2 box on your mat.
3. On your worksheet, complete the *Substance* and *Hypothesis* sections under Trial 2.
4. When instructed to do so, place 3-5 drops of the substance your group was given in the Trial 2 cube.
5. Observe the behavior of the brine shrimp for at least one minute. Then write your observations in the *Observation* section of Trial 2 on your worksheet.
6. You should also observe the brine shrimp on the instructor's digital microscope for a view of the brine shrimp at higher magnification.

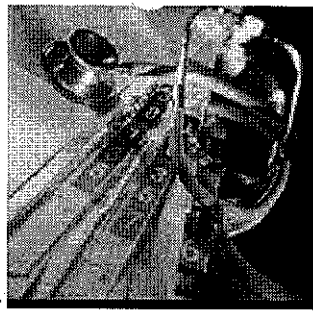
RNCPI-CBLT Session Three Task Cards

Stimulants and Depressants

Trial 3

Brine Shrimp Trial 3

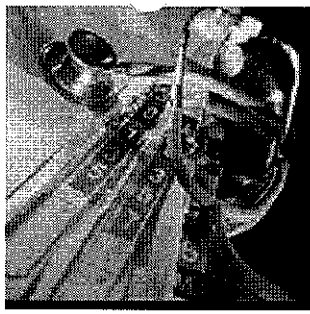
1. Move the cube in the Trial 1 box on your mat to the Trial 3 box on your mat.
2. Wait for an instructor to call your group to receive a different substance for Trial 3.
3. On your worksheet, complete the two *Substance* sections and *Hypothesis* sections under Trial 3.
4. When instructed to do so, remove the lid from the cube and apply 3-5 drops of the new substance in the cube. Then replace the lid. *(Remember, this sample of brine shrimp has already been exposed to alcohol.)*
5. Observe the behavior of the brine shrimp for at least one minute. Then write your observations in the *Observation* section of Trial 3 on your worksheet.
6. You should also observe the brine shrimp on the instructor's digital microscope for a view of the brine shrimp at higher magnification.



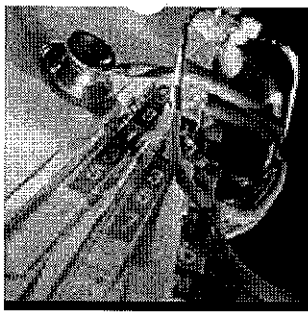
Regional Nursing Career Pathway Initiative CBJT

Session Three
Background Vocabulary

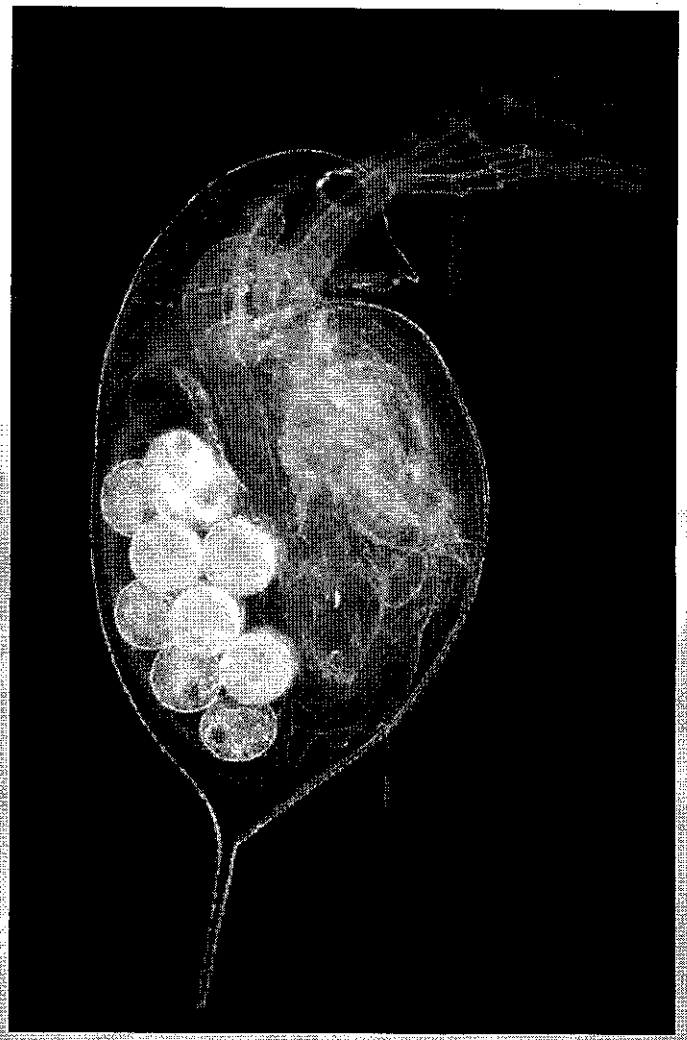
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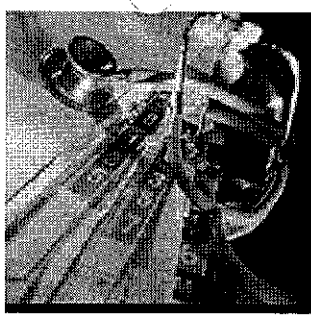


Vocabulary

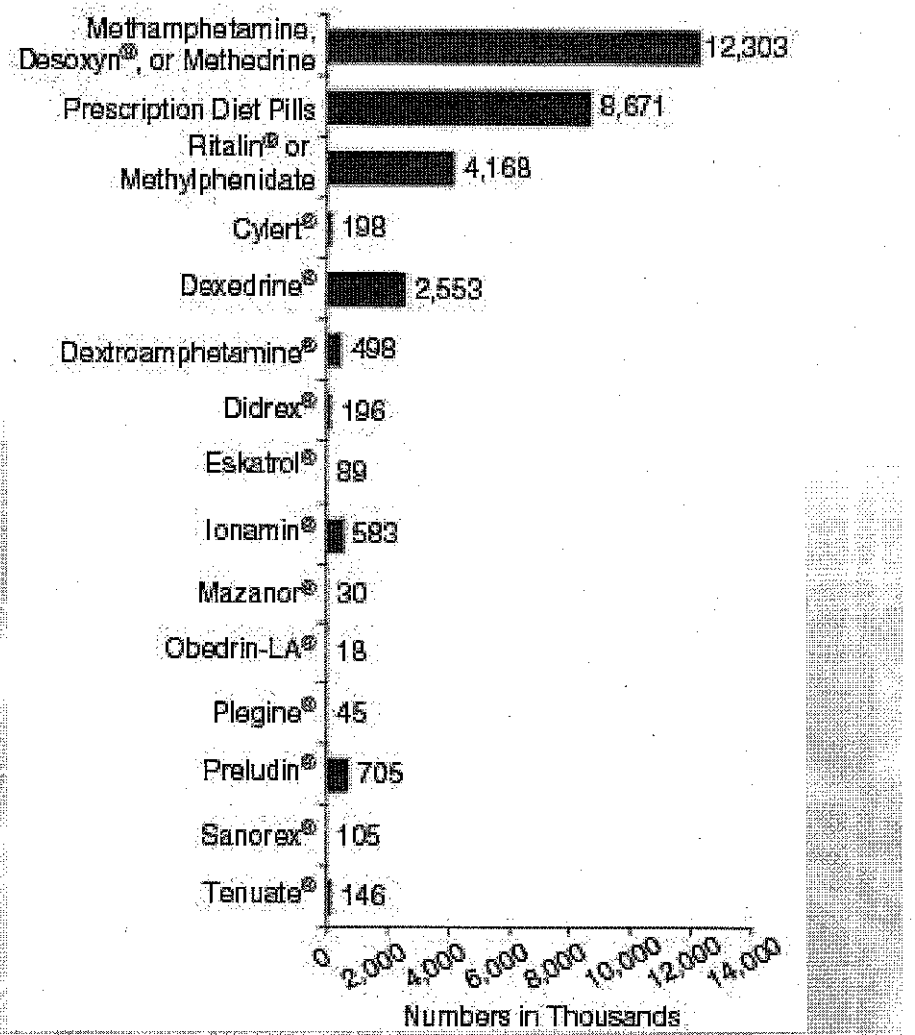


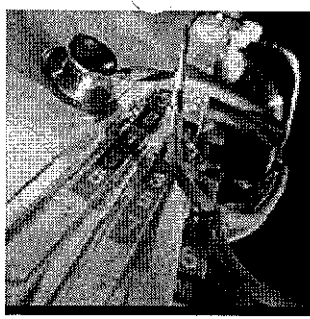
- *Any of various water fleas of the genus Daphnia, some species of which are commonly used as food for aquarium fish.*



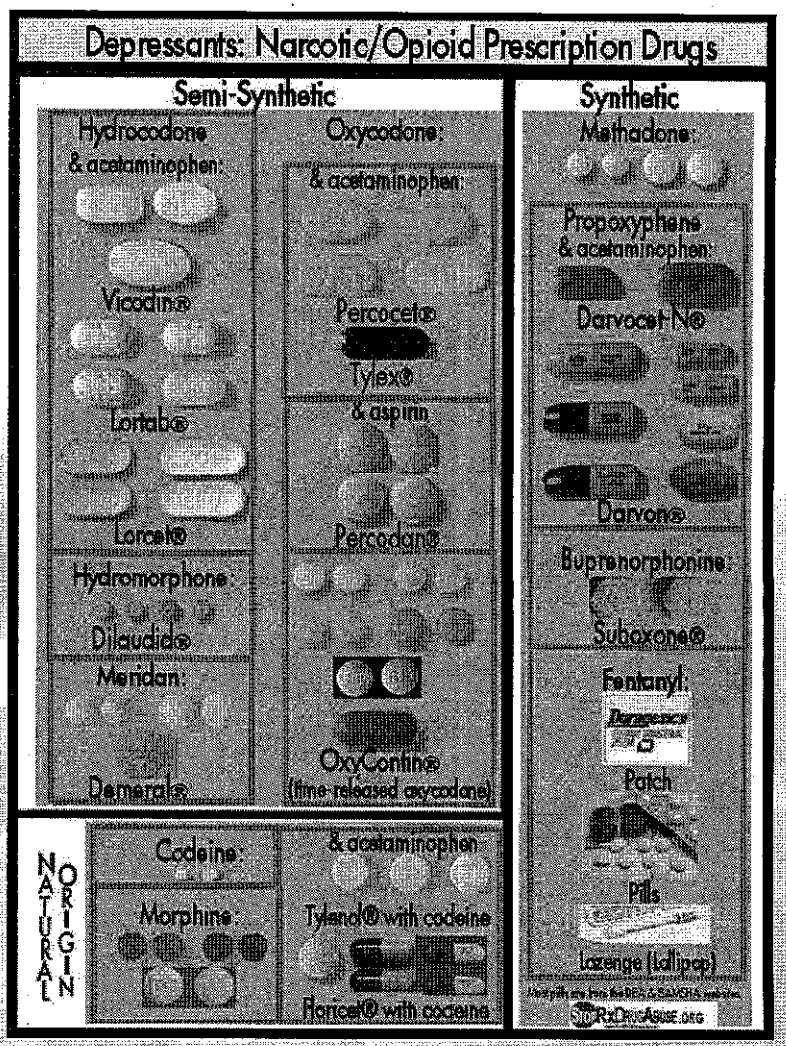


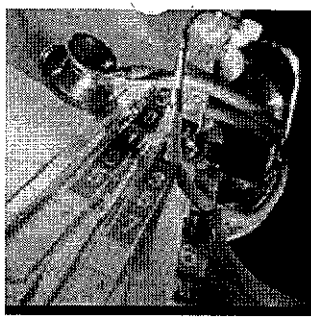
- An agent, especially a chemical agent such as caffeine, that temporarily arouses or accelerates physiological or organic activity.





- An agent, especially a drug, that decreases the rate of vital physiological activities.



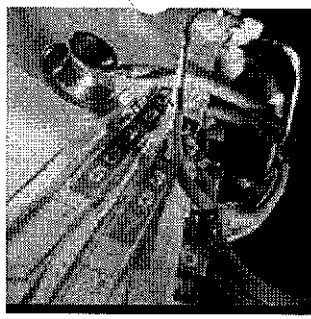


- A bitter white alkaloid, C8H10N4O2, often derived from tea or coffee and used in medicine chiefly as a mild stimulant and to treat certain kinds of headache.

Caffeine levels in popular products are as follows:

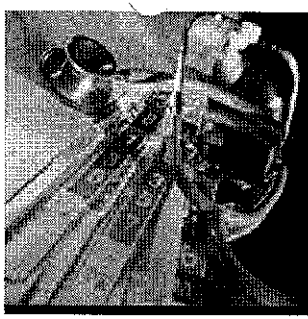
Product	Range
Coffee, 8oz drip (240 ml)	104-192 mg
Tea, 8oz brewed (240 ml)	20-90 mg
Iced Tea, 8 oz	9-50 mg
Coca-Cola®, 8 oz (240 ml)	23 mg
Diet Coke® or Coca-Cola® light,	23 - 31 mg*
Energy drink, 8 oz (240 ml)	70-85 mg
Cocoa Beverage, 8oz (240 ml)	3-32 mg
Milk Chocolate, 1 oz (30 mg)	1-15 mg
Dark Chocolate, 1 oz (30 mg)	5-35 mg

*Depending on location.



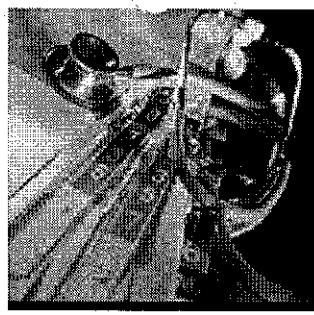
- a drug similar in action to ephedrine, used extensively as a decongestant.





- A drug used to counteract the physiological effects of histamine production in allergic reactions and colds.





- A depressant found in liquor.

