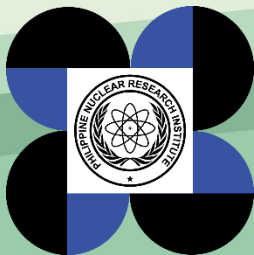


# BIOLOGY

**LIVING THINGS AND THEIR ENVIRONMENT**



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GOOD AFTERNOON



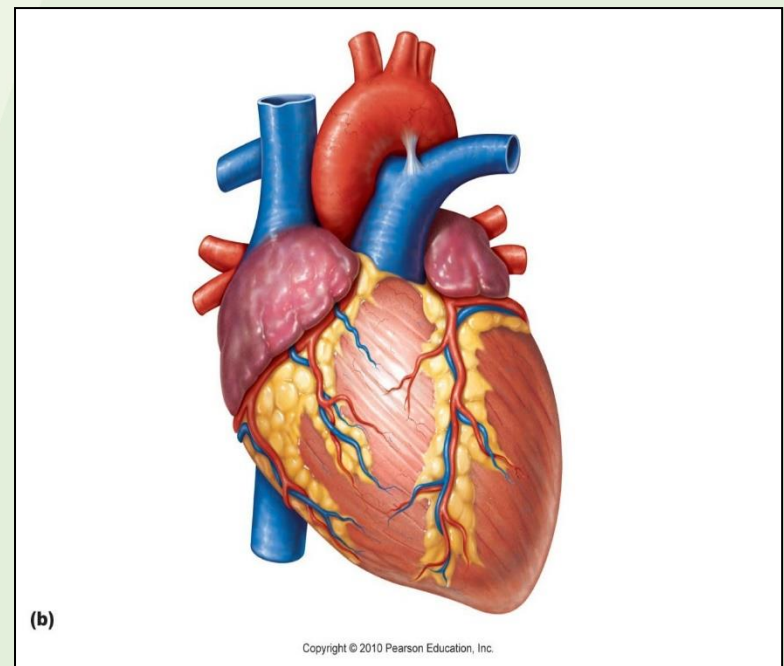
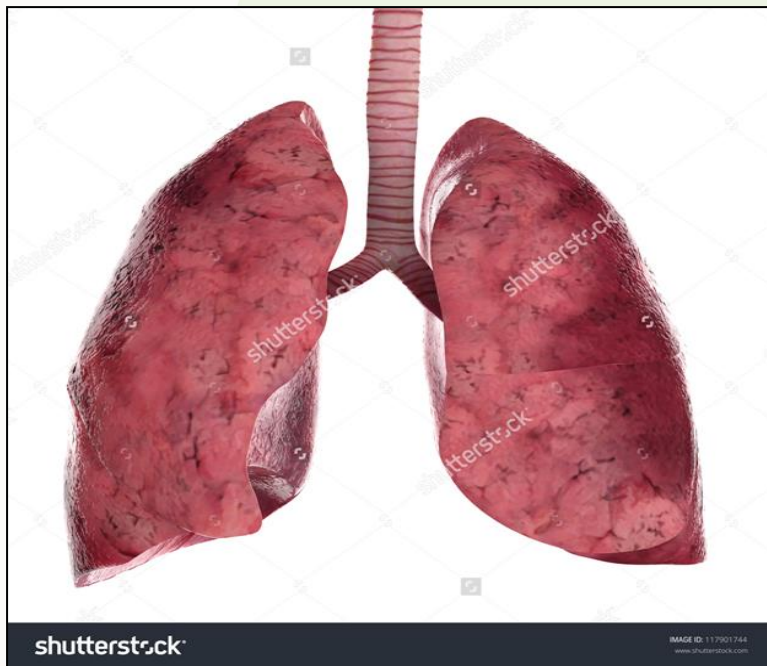
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# Mix, Match and Merge!

AEHRT

UGLNS



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[https://thumb1.shutterstock.com/display\\_pic\\_with\\_logo/1319155/117901744/stock-photo-human-lungs-and-trachea-d-render-117901744.jpg](https://thumb1.shutterstock.com/display_pic_with_logo/1319155/117901744/stock-photo-human-lungs-and-trachea-d-render-117901744.jpg)

K TO 12 SCIENCE

Content	Content Standards	Performance Standards	Learning Competencies
The Variety of Carbon Compounds	The learner ...	The learner...	<ul style="list-style-type: none"> <li>describes how the structure of carbon atom affects the type of bonds it forms.</li> <li>recognizes the general classes of organic compounds and their uses.</li> </ul>
Mole Concept		<ul style="list-style-type: none"> <li>designs an educational game involving mole concept.</li> </ul>	<ul style="list-style-type: none"> <li>uses the mole concept to express mass of substances.</li> <li>determines the mass of a given number of moles of a substance.</li> <li>determines the number of moles of a substance, given its mass.</li> <li>determines the percentage of composition of a compound given its chemical formula and vice versa.</li> </ul>
<b>GRADE 9 - Living Things and Their Environment SECOND QUARTER/SECOND GRADING PERIOD</b>			
Respiratory and Circulatory Systems Working with the Other Organ Systems	demonstrates understanding of <ul style="list-style-type: none"> <li>how the different parts and functions of the circulatory and respiratory systems and how they work with the other organ system to transport oxygen-rich blood and nutrients to the different parts of the body</li> </ul>	<ul style="list-style-type: none"> <li>practices healthful habits to maintain proper functioning of the organs of the respiratory and circulatory systems</li> </ul>	<ul style="list-style-type: none"> <li>describes the parts and functions of the circulatory system</li> <li>explains the mechanism on how the circulatory system transports nutrients, gases, and other molecules to and from the different parts of the body</li> <li>explains how harmful substances affect the respiratory and circulatory systems</li> </ul>

**APPLICATION OF RADIATION IN MEDICINE  
SUCH AS DIAGNOSIS AND THERAPY.**



# VIDEO



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<https://www.youtube.com/watch?v=4BRL7UcUZhy&t=149s>



# IAEA

International Atomic Energy Agency

For over 60 years, the IAEA has been supporting the safe and effective use of nuclear techniques in medicine around the world. When available, these techniques can help with the diagnosis, treatment and management of a wide range of illnesses.



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# What am I?

Nuclear medicine is a medical specialty that involves the application of radioactive substances to diagnose or treat disease.



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# Activity

## OBJECTIVE

- Identify nuclear imaging techniques and radioactive isotopes which are used in prevention and detection of diseases affecting the respiratory and circulatory systems.

**Group 1: Math-Sci-Ya!**

**Group 2: Fill In!**

**Group 3: Arrange Me!**

**Group 4: Puzzle Out!**

**Group 5: Match It!**



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# ACTIVITY

# Procedures

- 1. Perform the group activity for 10 minutes.**
- 2. Answer the guide questions**
- 3. Present your output in the class creatively.**
- 4. Your group will be rated using a Rubric.**



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# ACTIVITY

# Guide Questions



**It's Fun to Learn!**

- 1 What is your topic all about?
- 2 How can it help in the prevention and detection of diseases in the respiratory and circulatory systems?



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# Create and Present!



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**Very Good  
(5)**



**Good  
(3)**



**Need to  
Improve  
(1)**



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# Group Presentation of Output



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<https://image.slidesharecdn.com/chestx-rayinterpretation-140525084631-phapp01/95/chest-x-ray-interpretation-5-638.jpg?cb=1401007746>

**Very Good  
(5)**



**Good  
(3)**



**Need to  
Improve  
(1)**



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[https://www.phc.gov.ph/services/vtour/rad/images/ct/\\_MG\\_5](https://www.phc.gov.ph/services/vtour/rad/images/ct/_MG_5)

090.jpg

**Cardiac MRIs** are commonly used to assess damage to the heart following a heart attack. In addition, cardiologists use them to diagnose tumors, congestive heart failure, valve disease and congenital defects. Using a cardiac MRI, physicians can detect thickening of the walls of the heart, plaque in the vessels leading to and within the heart, and changes in the size of the chambers.



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**Very Good  
(5)**



**Good  
(3)**



**Need to  
Improve  
(1)**



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## One patient, two different views

**Traditional chest X-ray:** "If you look at a chest X-ray, it's a single image that projects a lot of anatomic information — bone, lungs, soft tissue," says Dr. Robert Gilkeson, of University Hospitals Case Medical Center. This X-ray does not show any malignancies.



**CT scan of the lungs:** The arrow in this scan of the same patient points to a malignant tumor. "The CT scan is really able to take 1 mm [sliced images] through the body. It's obviously an improvement," says Dr. Gilkeson.



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# CT Scan or MRI...which is best?

Yes, many of us have a question what is the difference between CT scan and MRI scan and thinking about which one is better than other. Usually both CT and MRI scanner machines look similar but what it does is entirely different.

CT scanners emit X-rays into the body and produces images of density and the tissues of a solid organ and can provide detailed information on head, eyes, inner ear, sinuses, chest, pelvis, hips, reproductive systems, bladder, gastrointestinal tract and skeletal system whereas MRI scanners emits powerful magnetic radio waves to produce pictures of organs, soft tissues, bone and other internal body structures.



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**Very Good  
(5)**



**Good  
(3)**



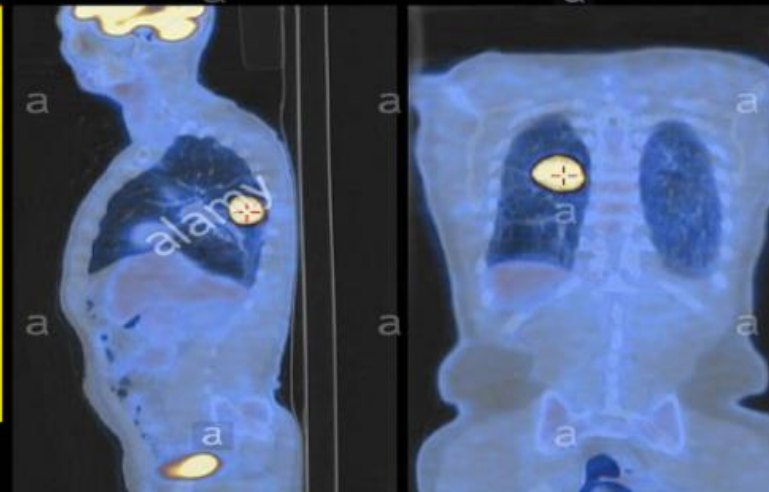
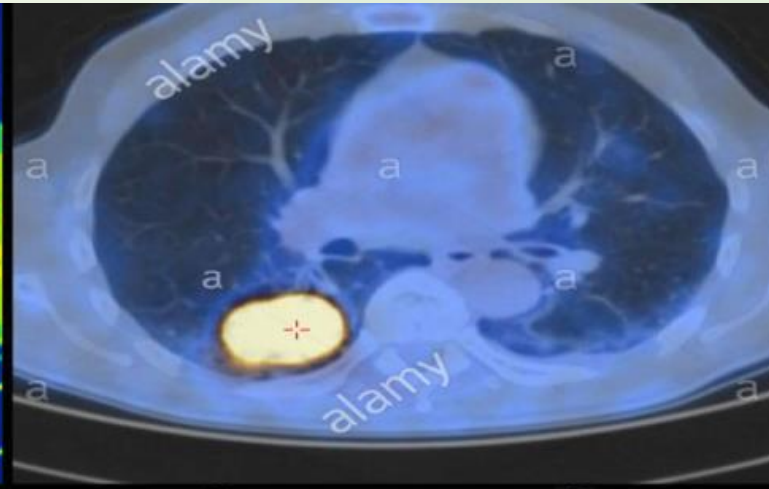
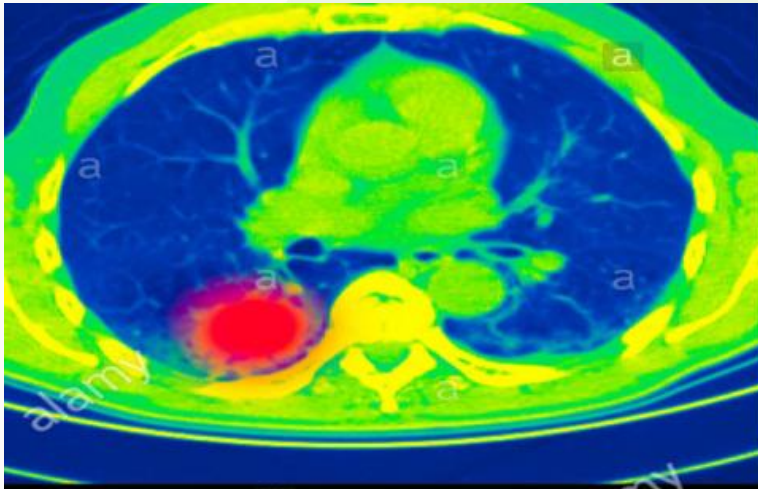
**Need to  
Improve  
(1)**



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# Difference between PET and other Scans

- A CT or MRI scan can assess the size and shape of the body organs and tissue. It cannot assess function.
- MRI or CT scans tell you how the organs look like while PET scan can tell you how it is working.



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**Very Good  
(5)**



**Good  
(3)**



**Need to  
Improve  
(1)**



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<b>Radioactive Isotope</b>	<b>Applications in Medicine</b>
<b>Cobalt-60</b>	Radiation therapy to prevent cancer
<b>Iodine-131</b>	Locate brain tumors, monitor cardiac, liver and thyroid activity
<b>Carbon-14</b>	Study metabolism changes for patients with diabetes, gout and anemia
<b>Carbon-11</b>	Tagged onto glucose to monitor organs during a PET scan
<b>Sodium-24</b>	Study blood circulation
<b>Thallium-201</b>	Determine damage in heart tissue, detection of tumors
<b>Technetium-99m</b>	Locate brain tumors and damaged heart cells, radiotracer in medical diagnostics (imaging of organs and blood flow studies)



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**Very Good  
(5)**



**Good  
(3)**



**Need to  
Improve  
(1)**



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The Philippine Nuclear Research Institute (PNRI) of the Department of Science and Technology (DOST) regulates the use of radioactive materials (RAM) in medical applications.

Medical personnel undergo trainings on radiation safety as one of the requirements in the acquisition of RAM license.



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Nothing in life is to be feared, it is only to be understood. Now is the time to understand more, so that we may fear less.

— *Marie Curie* —

AZ QUOTES



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Remember:

S

A

D

S

*Make It Work*  
**ACTION!**



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**S**moking is dangerous to your health.

If you are doing it...STOP! If you plan to do it...DON'T!

**A**lcohol intake should be in moderation.

**D**iet. Eat healthy food.

**S**tress. Manage stress. Talk to someone if you have  
problems. (Family or Friends)

*Make It Work*  
**ACTION!**



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# Interactive Quiz



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# @ Home Activity

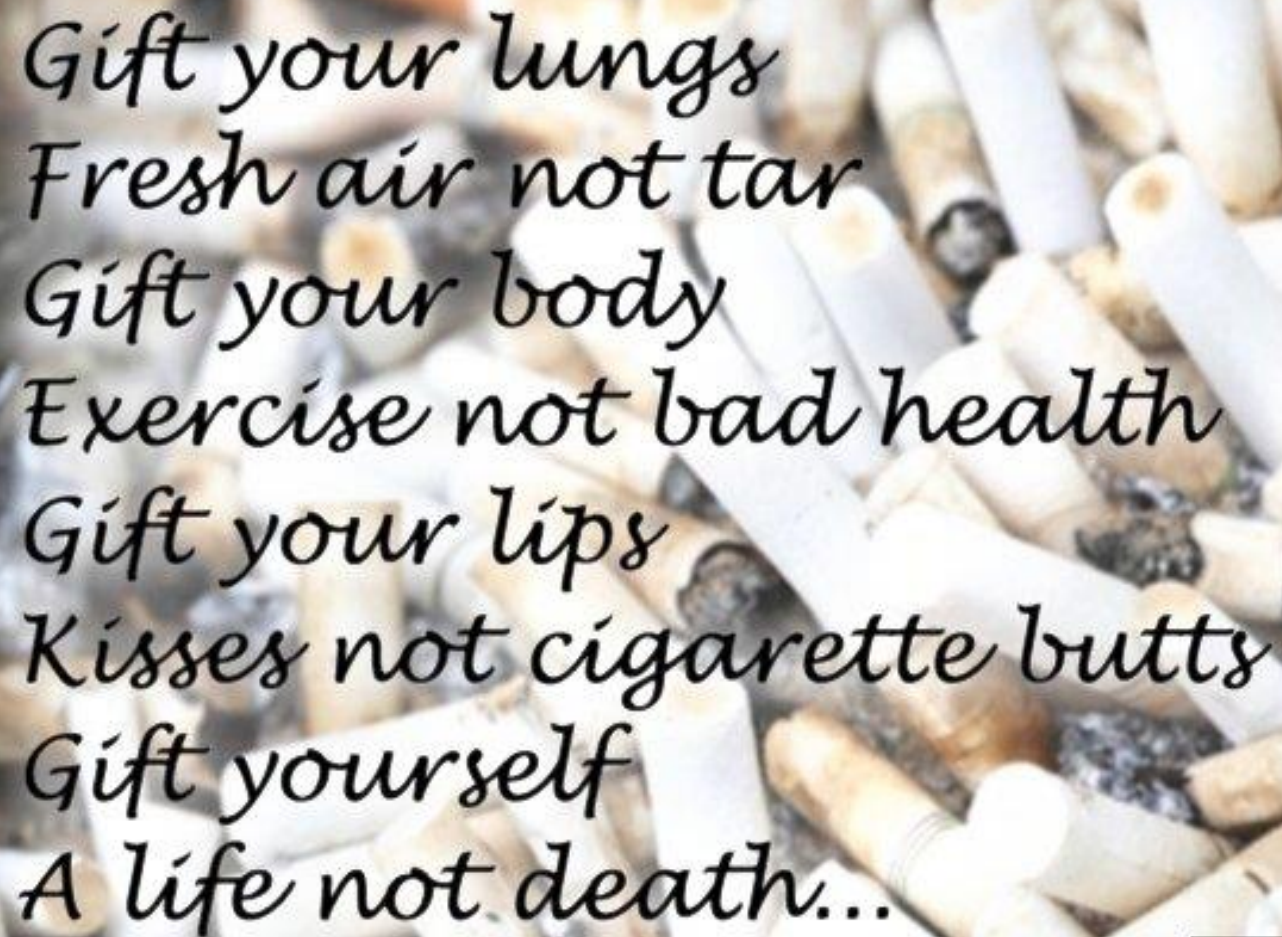
Conduct an information dissemination activity on nuclear imaging techniques and the effective ways of taking care of the respiratory and circulatory systems based on data gathered from the school or local health workers.



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Gift your lungs  
Fresh air not tar  
Gift your body  
Exercise not bad health  
Gift your lips  
Kisses not cigarette butts  
Gift yourself  
A life not death...

WishesMessages.com



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[http://2.bp.blogspot.com/-1Md\\_seN2ccM/VgUjsY\\_qEII/AAAAAAAAAHA/duMcONtbm7w/s1600/motivate-smokers-to-quit-smoking.jpg](http://2.bp.blogspot.com/-1Md_seN2ccM/VgUjsY_qEII/AAAAAAAAAHA/duMcONtbm7w/s1600/motivate-smokers-to-quit-smoking.jpg)

THANK  
YOU

OURSPAGER.COM



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