Lung Cancer Screening & Computer Aided Detection

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Lung cancer is the biggest cancer killer in both men and women.

Every year, about 200,000 people are diagnosed and 150,000 people die.

Cigarette smoking is the #1 cause of lung cancer. It is linked to 80% to 90% of all lung cancers.

Quitting smoking at any age can lower the risk of lung cancer.
Biomedical Imaging Lung Cancer

7 x 45 min lessons

Engage

Lesson 1 Monday
"Activity before concept, concept before vocabulary"

Cancer Statistics Mythbustes (15 mins)

Staging Overview (30 mins)

"I do, we do, you do"

Explore

Lesson 3 Wednesday

Introduction to UCF CRCV Current Research

Explain

Lesson 4 Thursday

Scaffolds

3-D Slicer In Class Guided Tutorial

Explore

Student use 3-D slicer. Send to 3D Print

Evaluate

Lesson 5 Friday

DNA Microarray NIH Blast Database

Lesson 6 Monday

Design Diagnosis Plan Extend Research

Lesson 7 Tuesday Invite UCF CRCV Faculty

Evaluate

Student Present Mini-Posters

Additional Screening

X-Ray Transparencies Staging in Neon (30 mins)

Compare (15 mins)
Lesson Plan

**Day 1**

**Introduction**
- Cancer Mythbusters Activity
- Staging Lung Cancer

**Day 2**

**Engage**
- X-Ray Transparencies “Staging in Neon”
- Collect Data

**Day 3**

**Explain**
- In-class walkthrough of segmentation using 3-D Slicer
Explore
- Use 3D slicer to segment lung nodule
- Compare data between human vs computer vision

Day 4

Elaborate
- Introduce students to research articles comparing different screening methods.
- Further analysis conducting DNA microarray “confirmation” test.
- Create a lung cancer early detection and confirmation diagnosis plan?

Day 5

Evaluate
- Mini-poster presentations outlining cancer detection and confirmation plans
- Analyze pros/cons and why they chose their method based off of existing research.
- Invite industry experts and UCF faculty.

Day(s) 6-7

Extend
Career Connection visit to UCF CRCV w/ AP CSP

Field Trip