The Respiratory System Unit Plan

Seventh Grade Integrated Science

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Special Education: General Curriculum

Special Education Instructional Unit Plan

SPED 5279: Content Area Instruction for Students with Special Needs

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# **Introduction and Overview**

# **General Information**

• Unit Title: The Respiratory System

• Unit Topic: The Human Body

• Course Content: Integrated Science

• Grade Level: Seventh Grade

• Length of Class Time: Clinical Placement

• Length of Time to complete Unit Plan: Ten days

# **Student Population Table**

Contextual/Environmental	Information Source	Implications for Instruction
Factors		and Assessment
Suburban school setting; 1,142	Cabarrus County Schools	Because this school has a
students; 223 students on free	website	large range of socioeconomic
or reduced lunch (less than		levels, be aware that disparity
20%, among the lowest in the		issues exist within the student
county)		population.
Computers/Net books	Classroom teacher	Provide time during class for
available for class use		Internet research.
Out of 27 students, 16 are	Classroom teacher	Check for accommodations
designated EC and are on	Special education teacher	and modifications, such as use
IEP's. One student is		of guided notes, read-alouds,
considered a one-on-one		additional time for assignment
learner.		completion, etc.
Out of 27 students, 19 are	Classroom teacher	Be aware of cultural diversity
boys. Only 8 girls.		and the disproportionate ratio
		of boys to girls.
This class requires in-depth,	Classroom teacher	Note that there will be
repeated, firm instructions/		repeated disruptions to
prompts in order to stay on		instruction; plan for additional
task.		time to address discipline
		issues.

#### **Broad Goals and Rationale**

### **Summary and Narrative Statement**

The central concept or foundation of this unit is for students to understand how the systems of the body work together to keep living organisms alive and healthy. With a focus specifically on the respiratory system, students will understand how and why air moves through their systems. Ultimately, they will be able to determine the relationships between all of the functions of each system of the human body.

This unit is comprised of the following questions:

- 1. What are the key parts of the respiratory system (RS)?
- 2. What are the functions of the key parts?
- 3. How are the functions of the RS connected to the functions of the Circulatory System?
- 4. How are lungs affected by choices humans make and activities they engage in? The objectives are:
- 1. Given three opportunities, after attending the lecture, students will identify the key parts of the respiratory system (lungs, carbon dioxide, oxygen, trachea, diaphragm, inhale, exhale, respiratory, bronchi, water vapor, pharynx) on a given diagram with 80% accuracy.
- 2. Given three opportunities, after attending lecture and reading the assigned materials, students will orally define the functions of the key parts of the respiratory system (lungs, carbon dioxide, oxygen, trachea, diaphragm, inhale, exhale, respiratory, bronchi, water vapor, pharynx) with 80% accuracy.

- 3. Given three opportunities, after completing a lab assignment, students will describe the relationships and connections between cells, tissues, organs, and systems with 80% accuracy. Students will reiterate the relationships and connections between cells, tissues, organs, and systems on a Concept Map with 80% accuracy.
- 4. Given three opportunities, after conducting research, students will identify relevant information related to behavioral or environmental respiratory illness with 80% accuracy. Students will organize information related to behavioral or environmental respiratory system illness based on given guidelines with 80% accuracy.
- 5. Given three opportunities, after conducting research, students will examine and apply relevant information related to behavioral or environmental respiratory illness based on given guidelines with 80% accuracy. Students will then consolidate information related to behavioral or environmental respiratory system illness.

#### **Materials**

Throughout this unit, we will utilize various types of instructional materials including a smart board, net book computers, an outdoor running track, two vocabulary worksheets (copies are provided in the Appendix), markers, poster boards, stop watches, and Microsoft Excel software for graphs and charts. These materials will be used to give all students a hands-on experience in teaching them how their respiratory system actually functions. By completing the lab, project, and assignments, the students will learn how the respiratory system works and how it functions in relation to other systems of the body. Throughout the unit, students will begin to understand some of the ways in which their bodies sustain life, as well as some integral ways to maintain optimum healthy lifestyles.

#### **Rationale Statement**

Essential Standard 7.L.1 of the Common Core states that students will understand how living organisms live and reproduce and how they carry out essential functions of life. This unit is being taught so students can not only learn how the systems of the body work, and work together, but also so they can apply this knowledge directly to the inner workings of their own bodies. On a more global level, they will learn how their choices can impact others, as well as how the choices of others can impact them. This will be accomplished through a hands-on lab experiment as well as a research-based project.

### **SMARTER Planning Summary**

The SMARTER Planning Process is constructed on the following acronym:

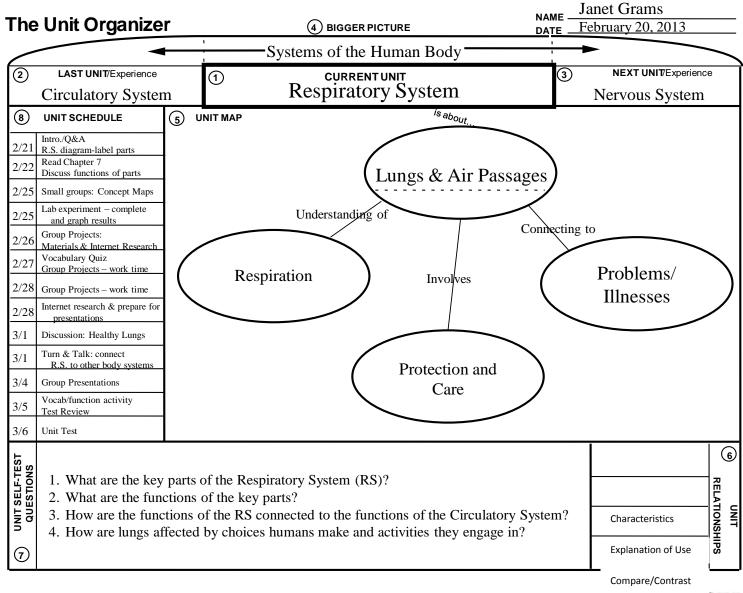
- S Shape the critical questions
- M Map the critical content
- A Analyze for learning difficulties
- R Reach enhancement decisions
- T Teach Strategically
- E Evaluate Mastery
- R Revisit Outcomes

The Smarter planning process enables teachers to provide instruction in a very specific, controlled, organized manner. This will ensure that all students will be able to not only understand the content being taught, but also organize it and retain it. The teacher uses the process to create critical questions for the unit, organize those questions, make ongoing decisions regarding the direction of instruction, teach strategies that will help the students retain the

information, and then evaluate whether or not the students have mastered the content (Lenz, Deschler, & Kissam, 2004).

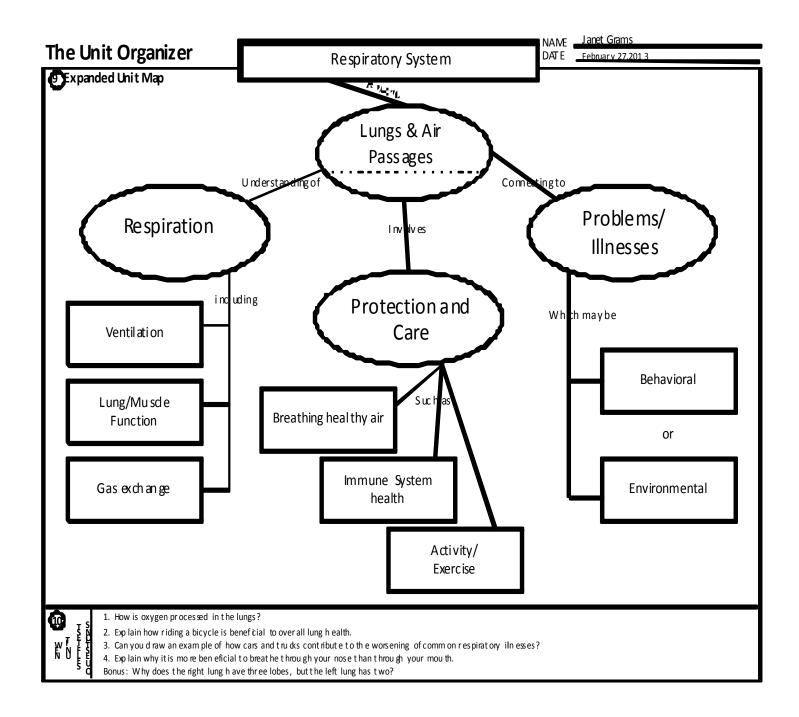
# **Unit Organizer Routine**

The Unit Organizer and the Expanded Unit Map are pictured on pages 8 and 9.



Cause and Effect

ersity of Kansas Center for Research on Learning 2006



# **Content Standards Table**

Project Goals	<b>Corresponding Common Core Standard</b>		
Given three opportunities, after attending the	Essential Standard 7.L.1:		
lecture, students will identify the key parts of	Understand the processes, structures and		
the respiratory system (lungs, carbon dioxide,	functions of living organisms that enable		
oxygen, trachea, diaphragm, inhale, exhale,	them to survive, reproduce and carry out the		
respiratory, bronchi, water vapor, pharynx) on	basic functions of life.		
a given diagram with 80% accuracy.	Clarifying Objective: 7.L.1.4:		
	Summarize the general functions of the		
	major systems of the human body (digestion,		
	respiration, reproduction, circulation, and		
	excretion) and ways that these systems		
	interact with each other to sustain life.		
Given three opportunities, after attending	Essential Standard 7.L.1:		
lecture and reading the assigned materials,	Understand the processes, structures and		
students will orally define the functions of the	functions of living organisms that enable		
key parts of the respiratory system (lungs,	them to survive, reproduce and carry out the		
carbon dioxide, oxygen, trachea, diaphragm,	basic functions of life.		
inhale, exhale, respiratory, bronchi, water	Clarifying Objective: 7.L.1.4:		
vapor, pharynx) with 80% accuracy.	Summarize the general functions of the		
	major systems of the human body (digestion,		
	respiration, reproduction, circulation, and		
	excretion) and ways that these systems		
	interact with each other to sustain life.		
Given three opportunities, after completing a	Essential Standard 7.L.1:		
lab assignment, students will describe the	Understand the processes, structures and		
relationships and connections between cells,	functions of living organisms that enable		
tissues, organs, and systems with 80%	them to survive, reproduce and carry out the		
accuracy. Students will reiterate the	basic functions of life.		
relationships and connections between cells,	Clarifying Objective 7.L.1.3:		
tissues, organs, and systems on a Concept Map	Summarize the hierarchical organization of		
with 80% accuracy.	multi-cellular organisms from cells to tissues		
	to organs to systems to organisms.		
Given three opportunities, after conducting	Essential Standard 7.L.1:		
research, students will identify relevant	Understand the processes, structures and		
information related to behavioral or	functions of living organisms that enable		
environmental respiratory illness with 80%	them to survive, reproduce and carry out the		
accuracy. Students will organize information	basic functions of life.		
related to behavioral or environmental	Clarifying Objective: 7.L.1.4:		
respiratory system illness based on given	Summarize the general functions of the		
guidelines with 80% accuracy.	major systems of the human body (digestion,		
	respiration, reproduction, circulation, and		
	excretion) and ways that these systems		
	interact with each other to sustain life.		

Given three opportunities, after conducting research, students will examine and apply relevant information related to behavioral or environmental respiratory illness based on given guidelines with 80% accuracy. Students will then consolidate information related to behavioral or environmental respiratory system illness.

## **Essential Standard 7.L.1:**

Understand the processes, structures and functions of living organisms that enable them to survive, reproduce and carry out the basic functions of life.

# Clarifying Objective: 7.L.1.4:

Summarize the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, and excretion) and ways that these systems interact with each other to sustain life.

## **Summary of the Scope of the Unit Content**

The all-encompassing content being taught is the human body. This unit in particular focuses on the respiratory system as one of the primary body systems that all living organisms possess. This unit requires students to learn the parts of the respiratory system as well as the functions of those parts. They will learn new vocabulary terms and how those terms relate to the human body as a whole. By doing so, they will learn how the respiratory system works with the other major systems of the body to keep human beings, as well as other living organisms, alive. In order to understand the instruction in this unit, students should possess an understanding of the structure and life functions of single celled organisms that carry out the basic functions of life. They should also have an understanding of the structures and functions of animal cells, including the major organelles such as the cell membrane, nucleus, mitochondria, vacuoles, and chloroplast.

Within this unit, the students will research various illnesses or conditions that relate directly to the respiratory system. They will learn which illnesses or conditions stem from behavioral causes, as well as which illnesses or conditions stem from environmental conditions. They will research what happens to the respiratory system when afflicted by one of these

illnesses, and they will learn many ways in which they can keep their own respiratory systems healthy.

This unit impacts the students in a very direct way, as they will be learning about the structure and function of their own body. The students will be made aware of how their actions affect others around them, and how the actions of others affect them, such as in the case of second-hand smoke. In this way, the study contained in this unit will impact the students on a global level as well as a personal one.

### **Cultural Responsiveness**

While learning about the systems of the human body, specifically the respiratory system, students will gain a fundamental knowledge of how their own bodies function as well as a knowledge of the individual differences between them. They will also explore various anomalies of the human body, and the ways in which certain sub-cultures have either a higher or lower prevalence of specific diseases or illnesses. They will also learn how different risk factors affect different cultures in our population including the elderly and the impoverished, as well as among the genders and various races. They will learn ways in which genetics play a role, and also ways in which various races are affected by certain diseases while others are not. This will be accomplished through class discussions, brief lectures, net book Internet research, activities, a lab, and peer interactions during group project work.

# **Content Integration**

<b>Unit Content</b>	Other content area(s)	
Science	English	
Science	Social Studies	
Science	Information and Technology	

This unit plan is integrated with other disciplines such as English, Social Studies, and Information and Technology. Integration of English will take place throughout the unit. Specifically, it will be integrated as students learn new vocabulary in the lesson plans of February 21 and February 22. Later in the unit, students conduct independent and group research in order to study cause and effect relationships in regard to human choices and activities and the ensuing consequences of those actions. In the lesson planned for March 4, the students will give oral presentations to discuss what they have learned through their research.

The unit plan is also integrated with Social Studies. Portions of the research in the lessons for February 26 and February 28 include gaining knowledge of and discussing ways in which the respiratory system has historically been affected by age, gender, race, and socio-economic conditions. They will make connections in both a historical context and a personal context; relating ways in which the knowledge of this content affects their bodies and their lives. They will also be able to make connections between historical facts and future implications for health and well-being.

Information and Technology is incorporated extensively throughout this unit plan. Students will be utilizing net books to research the respiratory system illnesses which can be caused or exacerbated by both behavioral and environmental factors. They will then use the information they learned to create a poster board display which they will orally present to the class. In addition, in the lesson plan for February 25, they will conduct a lab experiment. The students will pair up and run laps. After the laps have been run, they will clock the amount of time it takes to return to regular breathing. The results of this lab will be graphed using Microsoft Excel's charting feature.

# Assessment Methods, Evaluation and Impact on Student Learning

# **Assessment Methods Table**

Learning Goals Addressed	Assessments for Projects	Format of Assessment	Preliminary Assessment Adaptations
Given three opportunities, after attending the lecture, students will identify the key parts of the respiratory system (lungs, carbon dioxide, oxygen,	Pre-Assessment	Informal Observations: General education teacher question/answer session	Ask questions; allow adequate time for responses. Provide prompts and direction as needed. Provide IEP modifications as needed.
trachea, diaphragm, inhale, exhale, respiratory, bronchi, water vapor, pharynx) on a given diagram with 80% accuracy.	In-progress Assessments	Student work samples: Students complete LINC tables; complete blank respiratory system diagram; brainstorming activity—students will list as many parts of the respiratory system as they remember.	Read-aloud as needed. Provide prompts and direction as needed. Note-taking/dictation assistance as needed. Re-teaching of key concepts as needed. Provide IEP modifications as needed.
Given three opportunities, after attending lecture and reading the assigned materials, students will orally define the functions of the key parts of the	In-progress Assessments	Brainstorming activity—students will list as many parts of the respiratory system as they remember.	Re-teaching of key concepts as needed. Provide IEP modifications as needed. Provide prompts and direction as needed.
respiratory system (lungs, carbon dioxide, oxygen, trachea, diaphragm, inhale, exhale, respiratory, bronchi, water vapor, pharynx) with 80% accuracy.	Performance Task	Student volunteer at the Smart Board to trace path of air through lungs; remainder of class collaborates to assist in making any needed corrections.	Provide direction and prompts as needed. Keep activities brief and high-interest.

			<u>,                                    </u>
Given three opportunities, after completing a lab assignment, students will describe the relationships and connections between cells, tissues, organs, and systems with 80%	Pre-Assessment	Performance task: Students will complete a respiratory system vocabulary fill-in-the-blank review sheet.	Provide read-alouds as needed. Provide dictation assistance as needed. Provide IEP modifications as needed. Allow adequate time to complete tasks.
accuracy. Students will reiterate the relationships and connections between cells, tissues, organs, and systems on a Concept Map with 80% accuracy.	In-progress assessments	Student work samples: Students will create and complete a Concept Map.	Provide read-alouds as needed. Provide dictation assistance as needed. Provide IEP modifications as needed. Allow adequate time to complete tasks.
		Performance Task: Student partner collaboration to complete Concept Maps.	Provide prompts and redirection as needed. Provide read-alouds as needed. Provide dictation assistance as needed. Provide IEP modifications as needed. Allow adequate time to complete tasks. Keep all activities brief and high-interest.
Given three opportunities, after completing a lab assignment, students will describe the relationships and connections between cells, tissues, organs,	Informal Observations	Performance Task: Teacher observes students working with partners to complete lab activity and Microsoft Excel graphing activity.	Provide prompts and redirection as needed. Provide IEP modifications as needed. Keep activities brief and high-interest.
and systems with 80% accuracy. Students will reiterate the relationships and connections between cells, tissues, organs, and systems on a	Post-assessment	Student Work Samples: Ticket-out-the-door	Allow adequate time for completion. Provide dictation assistance as needed.

Concept Map with 80% accuracy.			
Given three opportunities, after conducting research, students will identify relevant information related to behavioral or environmental	Informal Observations	Performance Task: What "might" happen "if" discussion; students asked to think and imagine and discuss.	Allow adequate time for responses. Provide prompts as needed.
respiratory illness with 80% accuracy. Students will organize information related to behavioral or environmental respiratory system illness based on given guidelines with 80% accuracy.	In-progress Assessments	Student Work Samples: Written notes derived from research (students working on group research projects)	Demonstrate appropriate use of websites/web resources. Provide prompts and direction as needed. Provide read-aloud as needed; Provide note- taking/dictation as needed. Allow adequate time to complete research. Provide IEP modifications as needed.
	Post-assessments	Performance Task: Discussion, oral question & answer; review for quiz.  Quiz: Students will complete a vocabulary quiz in multiple choice and fill-in-the- blank format	Allow adequate time for responses. Provide prompts and redirection as needed.  Provide read-aloud as needed. Provide note-taking/dictation as needed. Provide IEP modifications/testing accommodations as needed. Allow adequate time for completion.

#### **Instructional Strategies and Activities**

# **Overview of Instructional Strategies and Routines**

The general education teacher will begin by presenting the content from the lesson plan for each given day. She will use the Smart Board as needed to present specific content such as introducing the students to new vocabulary terms. She will direct the overall flow of each class period as predetermined. The special education teacher will re-teach the content to a small group of students in need of additional support, and will also provide accommodations such as readalouds and note-taking assistance.

The LINCS Strategy will be implemented during the introduction to the unit. This strategy will help the students to better remember and understand the new vocabulary terms (Ellis, 2000). Many of the terms may be difficult and relatively unfamiliar to the students.

There are a number of lower-achieving students in this classroom who will directly benefit from the use of a Unit Organizer and an Expanded Unit Organizer. These are content enhancements designed and proven through research to be effective in improving the success rate of various groups of students including those who are average-achievers, those who are low-achievers, those with disabilities, and those whose first language is not English. The organizers introduce the main topic, or "big idea," of the lesson, as well as provide an overview of the primary concepts to be learned. They also provide ways for the students to connect prior knowledge to current instruction to future content. The organizers effectively display the content information in a visual framework to help each student understand and process the material being taught (Boudah, Lenz, Bulgren, Schumaker, & Deshler, 2000).

A strategy that will be used toward the end of the unit will be the Test-Taking Strategy, PIRATES:

# P - prepare to succeed

- Put your name and "PIRATES" on the test
- Allot time to certain sections
- Start within 2 minutes
- Think positively

# I – inspect the instruction

- Read the instructions carefully
- Underline what to do and where to respond
- Notice special requirements

# R – read, remember, reduce

- Read the whole question
- Remember what you studied
- Reduce the choices

#### A – answer or abandon

- Answer the question
- Abandon the question for the moment

#### T – turn back

### E-estimate

- Avoid absolutes
- Choose the longest or most detailed choices
- Eliminate similar choices

# S - survey

• Survey to ensure all questions are answered

• Switch an answer only if you're sure

This effectiveness of this strategy has been proven through research as it promotes the ability to self-talk, and it also helps the students to feel in control while they are taking a test. It is a process that has proven to be successful in keeping the students active and engaged throughout the test (Barrier, Hughes, Schumaker, Deshler, & Mercer, 1993).

#### **Universal Design for Learning**

The purpose of Universal Design for Learning is to ensure that all students have the same access to the same materials and instruction, regardless of individual needs. In this unit, the students will access the Internet, they will have access to visual as well as kinetic utilization of the Smart Board, and they will be provided with school-owned computers for the purpose of utilizing Microsoft Excel software.

As the students work together in groups, they will learn essential skills such as cooperation and collaboration. They will also learn essential 21st Century skills such as critical thinking and problem solving skills. Each group will be diverse, representing students who are average-achievers and those students who require special education services. They will research various ailments related to the respiratory system, and they will then incorporate that research first by creating poster boards for display, and then through oral reports delivered to the class. This will allow the students to express what they have learned in a written format, an illustration format, and/or an oral format.

Instructional strategies to promote peer support include cooperative learning, peer-mediated instruction, collaboration and cooperation, among other things. In cooperative learning, students work together in groups where they learn to be effective contributors to the group effort, while also being individually recognized for their effort (McMaster & Fuchs, 2002). Peer-

mediated instruction is used when students work together in various ways such as tutoring, modeling, and prompting to improve the achievement of all students (Lenz et al, 2004). Peer-mediated instruction also benefits teachers because they are then able to spend more time with the students who need individual or more in-depth assistance (Kalfus, 1984).

The technological enhancements such as the Internet, net books, and Smart Board are utilized extensively throughout this lesson. Internet access and net books provide each student with the opportunity to complete research. The Smart Board will be used on a regular basis to visually present content, and also to enable students to become actively involved kinetically as well as instructionally. The content information for the unit will be provided through words, photos, and videos. The Smart Board will help those students with sensory abilities to be able to process the knowledge in various ways, such as aural, visual, and tactile.

Content enhancement techniques such as the Unit Organizer and the Expanded Unit Organizer provide conceptually explicit instruction to all students. Using these techniques, they are provided with a visual/graphic representation of the entire unit. It is organized for readability and comprehension, and also contains connections to the previous unit as well as to the unit that will follow.

The LINCS strategy will be taught to introduce new vocabulary and enable the students to retain what they are learning. This will be presented on the Smart Board, as well as on worksheets that the students will complete. The PIRATES strategy will be taught to give the students a mental framework for test taking. This strategy has proven through research to be successful in helping students improve performance on tests.

#### **Collaborative Instruction**

This classroom consists of the general education teacher, a resource/special education teacher, a student teacher, and a special education student, acting as a special educator. Primarily, I work closely with the general education teacher. The resource/special education teacher is usually close by for consultation purposes or to offer advice. The student teacher pulls out two of the students half way through the class period. She takes them to a separate classroom for instruction based on requirements in their IEPs.

The general education teacher concentrates her efforts on presenting the actual science content to the class as a whole. I concentrate heavily on working with small groups of students who are in need of accommodations such as read-alouds. I also work with two students by taking notes for them and providing any other types of assistance they need. I consult mainly with the special education teacher for her input and ideas, and for her expertise in knowing the accommodations required by the IEPs.

This method of "one-teach one-support" works well for many reasons. First, I am not a science teacher, and I have no background in science content or materials. The general education teacher, however, is the expert. She has been teaching science for nearly thirty years. Also, the students that I work with are in great need of the extra support and assistance I am able to provide. Finally, this method works very well in helping me to get to know the students.

Within the one-teach one-support framework, I provide extensive support to the general education teacher, allowing her to concentrate her time and effort on the content. I am able to relieve her of integral responsibilities that she would otherwise have to find time to do in this incredibly diverse classroom.

Co-teaching was planned using the Co-teaching Lesson Plan Book (Dieker, 2009). The determination of how to split duties was based on background knowledge of the content as well as areas of expertise. Since one-teach one-support is the model being followed, the general education teacher teaches the basic content while the special educator provides support and assistance on a roving basis, as well as works with small groups. The general education teacher also handles the primary components of assessments, while the special educator is in charge of working with students who are classified as "mark in book," as opposed to filling out scantron sheets.

# **Co-teaching Lesson Plan Book**

# **General Educator Co-Teaching Lesson Plan**

Date	Big Idea	Lessons/Activities	Assessment
2/21	Students will prepare for new unit content.	Review prior unit. Introduce new unit; introduce vocabulary terms	Worksheet – complete diagram of the respiratory system
2/22	Students will evaluate the ways in which the parts function	Use smart board, textbook, class discussion to present information on the functions of the parts	Worksheet – fill-in-the- blanks using the words from the word box
2/25	Students will complete a lab experiment and ascertain the ways in which the systems of the body work, and work together	Students will partner up, go out to the track, run a lap, and clock the time it takes for regular breathing to resume.  Students will create and complete a concept map illustrating the interconnectivity of the body systems	Completed Microsoft Excel graphs, charting the results of the running experiment.  Complete concept maps.
2/26	Students will work in groups to research illnesses/diseases  Students will determine which websites are appropriate for use.	Students will perform Internet research using net books Use class discussion; provide specific examples	Evidence of research through written notes and plans for completing project (i.e., materials to use; written notes showing facts of illnesses)
2/27	Students will demonstrate knowledge of the parts, the functions of the parts, and the ways in which the systems are connected.	Students will complete quiz.  Students will continue to work on research and knowledge-gathering for projects	Quiz  Evidence of research through written notes and plans for completing project

# **Special Educator Co-Teaching Lesson Plan**

Co-teaching Structure	Behavioral/Academic Adaptations	Materials/Support	Team Notes
One-teach One-support	Review content information. Provide behavior prompts. Utilize learning enhancements. Provide modifications for assignments.	Provide note-taking assistance. Provide read-alouds as needed. Provide re-teaching to small group.	Approximately 85% to 90% of this class requires heavy prompting to stay quiet and stay on task.
One-teach One-support	Review content information. Provide behavior prompts. Utilize learning enhancements. Provide modifications for assignments.	Provide note-taking assistance. Provide read-alouds as needed. Provide re-teaching to small group.	Some students will require additional time to complete assignment.
One-teach One-support	Review content information. Provide behavior prompts. Utilize learning enhancements. Provide modifications for assignments.	Assist individual teams as needed.  Work with small groups to help with assignment understanding and completion.	Some students will require additional time to complete assignment.
One-teach One-support	Review content information. Provide behavior prompts. Utilize learning enhancements. Provide modifications for assignments.	Provide computer support to students as needed.  Provide read-alouds as needed.  Provide note-taking assistance.	Some students will need help deciphering appropriate websites to use.
One-teach One-support	Review content information. Provide behavior prompts. Utilize learning enhancements. Provide modifications for assignments.	Provide assistance asneeded on an individual basis.  Provide read-alouds on an individual basis.	Some students may need additional time on quiz; other students will be able to complete quiz and work on research while waiting for the rest of the class to finish.

## **Technology Integration**

The use of technology is a large part of encouraging students to become 21st Century learners. Through the use of technology, students learn essential skills such as problem solving techniques and critical thinking skills. In this unit, students will utilize technology such as the Internet, Microsoft Excel, and the Smart Board. On February 26, 27, and 28, the students will utilize the Internet using net books to research information to discover connections between the functions of the systems of their bodies. Also, they will use the Internet to research diseases in their entirety, from origin to cure, or from origin to death, as the case may be. This will help them to make global connections and recognize multi-cultural insights within science, as they will be learning about diseases that affect certain sub-groups and cultures of people. In accordance with the 21st Century skill of using critical judgment, they will be taught how to choose and evaluate websites, how to use various forms of multimedia, and when it is acceptable to use social media.

On February 25, the students will complete a lab and then chart the results on a Microsoft Excel graph. These visual representations will make it possible for the students to compare and contrast the efficiency of their lung function to that of their peers. Throughout this lab, the students will become conscious of an aerobic body function that they normally wouldn't pay attention to because it is generally an involuntary function.

The Smart Board is utilized in this unit on an almost-daily basis in order to provide a visual to reinforce what the students are hearing. It is also a place where illustrations, photos, and videos are presented and explained so that all students can follow along in the lesson. Furthermore, the Smart Board gives the students an opportunity for hands-on involvement, as they can physically touch the board and fill-in-the-blanks for various presentation of content.

In alignment with Universal Design for Learning, all students in this class are given access to all of the types of technology offered. For example, all students are given the opportunity to use guided notes if utilized by the general education teacher, not just those who may require that type of instruction. All lessons in this unit have been designed to meet the needs of all students in this class, not just those who are entitled to special education services.

RESPIRATORY SYSTEM UNIT PLAN

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## **Daily Lesson Plans**

**Lesson Plan:** 2/21/13

**Subject:** Integrated Science

**Topic:** The Respiratory System

**Rationale:** In order for students to understand how living organisms live and reproduce and

how they carry out the essential functions of life, they must gain and apply knowledge of how

the systems of the body work, and work together. They must also be able to apply the

knowledge directly to the inner workings of their own bodies. Also, they should be able to

explain how their choices impact others, and vice versa.

**Objective:** Given three opportunities, after attending the lecture, students will identify the key

parts of the respiratory system (lungs, carbon dioxide, oxygen, trachea, diaphragm, inhale,

exhale, respiratory, bronchi, water vapor, pharynx) on a given diagram with 80% accuracy.

**Common Core Essential Standards:** 

Essential Standard 7.L.1: Understand the processes, structures and functions of living

organisms that enable them to survive, reproduce and carry out the basic functions of life.

Clarifying Objective 7.L.1.4: Summarize the general functions of the major systems of

the human body (digestion, respiration, reproduction, circulation, and excretion) and

ways that these systems interact with each other to sustain life.

Materials/Technology: Smart Board, teacher's laptop computer, dry erase markers, LINC

sheets, student notebooks

Focus/Review: "Last week, we finished a unit on the circulatory system." The general

education teacher will call on individual students to name the parts/functions of the circulatory

system. She will correct and/or direct as needed and provide positive feedback when warranted.

"Today, will we introduce the respiratory system. We will focus on the key parts. By the end of the period today, you will be able to point to a diagram and name the parts yourself!" **Teacher Input:** The general education teacher will show the key vocabulary terms on the Smart Board (lungs, carbon dioxide, oxygen, trachea, diaphragm, inhale, exhale, respiratory, bronchi, water vapor, pharynx). She will then present a brief lecture.

The special education teacher will provide students with a diagram of the respiratory system and a LINC sheet. She will also present the Unit Organizers during this introduction to the unit.

**Guided Practice:** The general education teacher will guide the students through completing the LINC sheets.

The special education teacher will work with a small group of students, re-teaching the key terms, providing note-taking assistance, and assisting them in completing the LINC sheets.

Independent Practice: The general education teacher will display a completed respiratory system diagram on the Smart Board. She will then instruct the students to follow the diagram and complete the blank diagram they have in front of them. The special education teacher will provide read-aloud of the terms as well as writing assistance to those students who are in need.

Closure: The teacher will close by reviewing the key terms and pointing out the parts of the respiratory system on the Smart Board.

**Evaluation/Assessment:** The special education teacher will visually check each student's diagram for accurate completion. The general education teacher will guide a question/answer session for the entire class to evaluate understanding.

Universal Design for Learning: All students will have access to Smart Board instruction and diagrams, as well as all worksheets. Any students in need of extra assistance will have access to

instruction/attention from the special education teacher. For example, students in need of readalouds or note-taking/dictation assistance will have ready access to those types of accommodations.

Culturally Responsive Practices: The students will use the vocabulary terms they've learned in order to complete a diagram. The diagram will consist of the main parts of the respiratory system with blank lines. The students will fill in the blanks with the proper terms. They will learn that even though they appear different on the outside, the parts of their respiratory systems are alike.

RESPIRATORY SYSTEM UNIT PLAN

30

**Lesson Plan:** 2/22/13

**Subject:** Integrated Science

**Topic:** The Respiratory System

**Rationale:** In order for students to understand how living organisms live and reproduce and

how they carry out the essential functions of life, they must gain and apply knowledge of how

the systems of the body work, and work together. They must also be able to apply the

knowledge directly to the inner workings of their own bodies. Also, they should be able to

explain how their choices impact others, and vice versa.

**Objective:** Given three opportunities, after attending the lecture and reading the assigned

materials, students will orally define the functions of the key parts of the respiratory system

(lungs, carbon dioxide, oxygen, trachea, diaphragm, inhale, exhale, respiratory, bronchi, water

vapor, pharynx) with 80% accuracy.

**Common Core Essential Standards:** 

Essential Standard 7.L.1: Understand the processes, structures and functions of living

organisms that enable them to survive, reproduce and carry out the basic functions of life.

Clarifying Objective 7.L.1.4: Summarize the general functions of the major systems of

the human body (digestion, respiration, reproduction, circulation, and excretion) and

ways that these systems interact with each other to sustain life.

Materials/Technology: Smart Board, respiratory system diagrams, teacher's laptop, dry-erase

markers, student notebooks, textbooks

Focus/Review: "Yesterday, we learned about the parts of the respiratory system." The general

education teacher will ask students to brainstorm as many parts as they can. The special

education teacher will list them on the board as they are called out. When all responses are

finished, the general education teacher will ask students to check their notes from the previous day to see which parts, if any, are missing from the board. Positive feedback and correction will be utilized.

"Today, we will learn about the functions of those parts. By functions, I mean that we will learn what each part does, what it's job is. By the end of this lesson, you'll know how and why you breathe."

**Teacher Input:** The general education teacher will display the respiratory system diagram on the Smart Board. She will present the class with a brief lecture about how air is converted to carbon dioxide, while tracing its path through the lungs.

**Guided Practice:** The general education teacher will lead the class in a "popcorn reading" of the material contained in the textbook. She will pause the reading and lead a discussion at certain points throughout. The special education teacher will meet with the small group, and she will read the material to them. She will lead them in discussions at certain points throughout the reading.

Independent Practice: The general education teacher will instruct the students to do a "turn and talk" with their partner. The students will be told to discuss the primary function of the respiratory system, and then to trace the path from where air enters the lungs as oxygen to when it exits as carbon dioxide. Both teachers will monitor the progress of the paired groups and strive to keep the students on task and engaged.

**Closure:** The general education teacher will review the functions, paraphrasing content read in the book. She will survey the class for questions and answer them as required.

**Evaluation/Assessment:** The general education teacher will ask for a volunteer to come to the front and use the Smart Board to explain the primary function/path of air travel for the class. She

will then ask the class if the student's work was accurate. If it was, the class will be praised for hard work and good behavior. If not, a student will volunteer to come up and state what was wrong and how to make it accurate. Class will then be praised for hard work/behavior.

Universal Design for Learning: Some students will read aloud as called upon, while other students will be read to by the special education teacher. Also, the students will engage in discussion time with a peer. All students will have access to Smart Board instruction and pertinent diagrams.

Culturally Responsive Practices: The students will do a "turn and talk" activity with their partner. They will discuss the primary function of the respiratory system and then trace the air path using their finger, taking turns doing this to each other. They will learn that they have this function in common, and begin to realize these similarities are an essential function of life.

RESPIRATORY SYSTEM UNIT PLAN

33

**Lesson Plan:** 2/25/13

**Subject:** Integrated Science

**Topic:** The Respiratory System

**Rationale:** In order for students to understand how living organisms live and reproduce and

how they carry out the essential functions of life, they must gain and apply knowledge of how

the systems of the body work, and work together. They must also be able to apply the

knowledge directly to the inner workings of their own bodies. Also, they should be able to

explain how their choices impact others, and vice versa.

**Objective:** Given three opportunities, after completing a lab assignment, students will describe

the relationships and connections between cells, tissues, organs, and systems with 80% accuracy.

Students will reiterate the relationships and connections between cells, tissues, organs, and

systems on a Concept Map with 80% accuracy.

**Common Core Essential Standards:** 

Essential Standard 7.L.1: Understand the processes, structures and functions of living

organisms that enable them to survive, reproduce and carry out the basic functions of life.

Clarifying Objective 7.L.1.3: Summarize the hierarchical organization of multi-cellular

organisms from cells to tissues to organs to systems to organisms.

Clarifying Objective 7.L.1.4: Summarize the general functions of the major systems of

the human body (digestion, respiration, reproduction, circulation, and excretion) and

ways that these systems interact with each other to sustain life.

Materials/Technology: Paper, pens, net books, stopwatches (one per team), Smart Board

**Focus/Review:** "Yesterday, we learned about the functions of the parts of the respiratory system. We learned why you breathe and how." The special education teacher will pass out the fill-in-the-blank (review) sheet. The students will complete it using the words in the box.

"Today, you're going to put what you've learned to work. We're going to conduct a lab experiment. By the end of the period, you'll learn how efficient your lungs are, and how your respiratory and circulatory systems work together!"

**Teacher Input:** The general education teacher will post the respiratory system diagram on the Smart Board. She will trace the flow of air through the lungs.

**Guided Practice:** The general education teacher will work with a portion of the students to create and complete a Concept Map of the parts and functions of the respiratory system.

The special education teacher will work with the small group and provide more in-depth assistance in creating and completing the Concept Map.

**Independent Practice:** The students will be partnered together, one higher-achieving student with one lower-achieving student who is in need of writing assistance. The higher-achieving student will be instructed to copy the Concept Map into his/her partner's notebook as the partner follows along.

As each pair finishes, the general education teacher will send them outside to the track, where the special education teacher will be waiting to provide instruction and supervision for the running lab.

One at a time, students will run around the track as fast as they can. When finished, they will time how long it takes their partner to return to a regular rate of breathing. They will also feel their wrists for a pulse, noting that their pulse rate (circulatory system) and respiration (respiratory system) increase and decrease in tandem. They will switch off, and then return to

the classroom, and graph their results in Excel. The general education teacher will remain in the classroom to provide instruction and assistance as the groups of students return with their data.

**Closure:** The general education teacher will discuss the lab and ask students to share their results with the class.

**Evaluation/Assessment:** Ticket out the door: The general education teacher will have the students write down something that surprised them, either during the lab or anytime during the learning of the respiratory system. They will hand in this paper on their way out of the classroom.

Universal Design for Learning: All students will have access to the use of the classroom net books and Microsoft Excel. Any students in need of extra assistance will have access to instruction/attention from the special education teacher. This includes help with collecting data and entering it into Excel to create graphs, along with reading and note-taking assistance.

It is noted that all students in this class have no physical disabilities that would prevent them from running around the outdoor track.

Culturally Responsive Practices: Within this lesson, the students will conduct an experiment which will allow them to explore how their lung capacity is different from other students even though they are the same age and in the same grade. They will graph their results and compare and contrast those results with peers of varying races, weights, heights, and genders.

RESPIRATORY SYSTEM UNIT PLAN

36

**Lesson Plan:** 2/26/13

**Subject:** Integrated Science

**Topic:** The Respiratory System

**Rationale:** In order for students to understand how living organisms live and reproduce and

how they carry out the essential functions of life, they must gain and apply knowledge of how

the systems of the body work, and work together. They must also be able to apply the

knowledge directly to the inner workings of their own bodies. Also, they should be able to

explain how their choices impact others, and vice versa.

**Objective:** Given three opportunities, after conducting research, students will identify relevant

information related to behavioral or environmental respiratory illness with 80% accuracy.

Students will organize information related to behavioral or environmental respiratory system

illness based on given guidelines with 80% accuracy.

**Common Core Essential Standards:** 

**Essential Standard 7.L.1:** Understand the processes, structures and functions of living

organisms that enable them to survive, reproduce and carry out the basic functions of life.

Clarifying Objective 7.L.1.4: Summarize the general functions of the major systems of

the human body (digestion, respiration, reproduction, circulation, and excretion) and

ways that these systems interact with each other to sustain life.

Materials/Technology: Net books, paper, pens, Smart Board, teacher's laptop

Focus/Review: "Yesterday, you learned about the efficiency of your lung function, and about

the functioning of healthy lungs." She will then have them pull up their graphs and "look at the

amount of time it took for you and your partner to return to a normal rate of breathing." She will

then ask the class how they think those numbers would be different if they had a lung illness or disease. She will provide positive or corrective feedback as the discussion progresses.

"Today, you're going to do some Internet research to get information on a specific disease. After this class period, you will have notes about your assigned lung disease, in preparation for poster board reports and an oral presentation."

**Teacher Input:** The general education teacher will display on the Smart Board a list of respiratory system illnesses, organized into two groups: "behavioral" and "environmental." She will give a brief lecture on the differences.

**Guided Practice:** The general education teacher will create diverse groups of students for project work. Each group will get a net book. She will then use her laptop and Smart Board to show the students how to locate appropriate websites, and how to research a specific disease.

The special education teacher will work with a small group to be sure they keep up with instruction. She will provide reading and writing assistance, and make sure students seem to understand what they are researching.

**Independent Practice:** The general education teacher will assign the groups to begin research on a specific illness. She will explain that they will be creating and presenting a poster board, so they should begin by listing the materials they will need. They should take notes, one copy per group is sufficient.

The special education teacher will work with a small group. She will provide reading and writing assistance, and make sure students seem to understand what they are researching.

**Closure:** The general education teacher will close the period by reviewing the differences between environmental and behavioral illnesses. She will ask students if they have questions.

She will remind them of the quiz the following day. Students will be praised and rewarded as earned.

**Evaluation/Assessment:** The general education teacher will take half the class; the special education teacher will take the other half. They will orally review for the quiz in a question/answer session.

Universal Design for Learning: For group projects, students will be provided with choices on how they can best serve their group. They can choose to primarily contribute through researching, writing, drawing, presenting, etc. All students have access to the use of the classroom net books, the Internet, and all supplies needed for projects. Any students in need of reading or dictation assistance will have access to the special education teacher.

**Culturally Responsive Practices:** The students will conduct research on specific respiratory system ailments. They will research ways in which different sub-cultures of people are affected by various illnesses. They will also research ways in which different races are more susceptible to some illnesses and less susceptible to others.

RESPIRATORY SYSTEM UNIT PLAN

39

**Lesson Plan:** 2/27/13

**Subject:** Integrated Science

**Topic:** The Respiratory System

**Rationale:** In order for students to understand how living organisms live and reproduce and

how they carry out the essential functions of life, they must gain and apply knowledge of how

the systems of the body work, and work together. They must also be able to apply the

knowledge directly to the inner workings of their own bodies. Also, they should be able to

explain how their choices impact others, and vice versa.

**Objective:** Given three opportunities, after conducting research, students will examine and

apply relevant information related to behavioral or environmental respiratory illness based on

given guidelines with 80% accuracy. Students will then consolidate information related to

behavioral or environmental respiratory system illness.

**Common Core Essential Standards:** 

**Essential Standard 7.L.1:** Understand the processes, structures and functions of living

organisms that enable them to survive, reproduce and carry out the basic functions of life.

Clarifying Objective 7.L.1.4: Summarize the general functions of the major systems of

the human body (digestion, respiration, reproduction, circulation, and excretion) and

ways that these systems interact with each other to sustain life.

**Materials/Technology:** Net books, student notebooks, paper

Focus/Review: "This past week, we've been learning about the parts and functions of the

respiratory system. Yesterday, we began applying that knowledge as you began researching a

respiratory system illness." The general education teacher will then call on a representative from

each group to give a brief definition of their illness.

"Today, you'll have more time to work on your research, but first...it's quiz time."

**Teacher Input:** The general education teacher will give the class five to seven minutes to work with a partner and review their notes.

**Guided Practice:** The class will be split, small group with special education teacher. Each teacher will ask their groups if they have any questions before taking the quiz, and they will quickly review the material.

**Independent Practice:** The general education teacher will direct the students to take out a sheet of paper. She will put the quiz questions on the Smart Board and instruct them to work quietly and independently. The special education teacher will walk around and provide reading and/or writing assistance as needed.

After the students have completed the quiz, the general education teacher will instruct the students to get in groups and resume group work/research.

**Closure:** The general education teacher will have the students put away the net books and return to their seats. She will call on random groups to share what they have learned so far in their research.

**Evaluation/Assessment:** Quizzes will be graded and returned the followed day. Toward the end of class, both teachers will visually check written notes obtained during research. (See Appendix for a copy of the rubric for the research project.)

Universal Design for Learning: Some students will choose to focus primarily on researching, others will choose writing, others will choose drawing, and others will choose to orally present the information to the class. All students have access to the use of the classroom net books, the Internet, and any support needed from the special education teacher.

Culturally Responsive Practices: Throughout the research and group presentations, students will learn that connections can be made between genetics and culture. They will learn how genetics play a role in determining the likelihood of whether or not a person (including themselves) might contract a specific illness.

#### **Unit Reflection**

### **Summative Reflection**

The time I spent during this clinical was a very eye-opening experience for me. It began positively, but by the end, I realized that even with the best plans and best intentions, a Unit Plan on paper may be just a lofty dream or vision.

In the beginning, I met with the general education teacher primarily, and I also met briefly with the special education/resource teacher. When I met with the general education teacher, we discussed the Unit that we would implement, as well as what our roles would be. I don't have a science background, and I explained this to the teacher. We decided that our roles would be that of "One-Teach One-Support," although I didn't actually learn that specific term until weeks later. We also discussed the demographics of the classroom, along with such topics as student behavior.

When I met with the special education/resource teacher, she explained more about the students I would be working with specifically. She told me about their most prevalent needs and what I should do to best assist them, as well as the classroom teacher. She also explained that the district had recently discontinued the PACE program, and that many of the students in the class were recently converted from that program.

I left these meetings with a plan of action and goals that had already begun to formulate in my mind. Unfortunately, when I returned to the classroom days later, as planned, the teacher had already completed the Unit we'd agreed to work on. I was disheartened because I had spent countless hours researching it, in order to develop knowledge of the content. Therefore, I had to quickly switch gears and set about learning new content.

During our first meeting, the classroom teacher told me that this class requires very heavy prompting to stay quiet and stay on task. Even after her warning, I was not prepared for the noise level and raucous activity I would encounter. Over the course of my clinical, I spent hours watching students call out to each other and engage in overt conversations — in the middle of instruction. Students out of their seats doing...whatever they wanted to do with whomever they chose to do it with...little to no discipline from the teacher...and ZERO consequences for the negative behaviors. As such, the students showed absolutely no respect for the teacher. In terms of consequences, I heard many threats, but not once did a threat become anything greater than just that. I found myself feeling shocked, enraged, and sorry for the teacher, all at the same time.

Insofar as One-Teach One-Support, I feel it actually went better than anticipated. My responsibilities were very clear, and I always knew exactly what I was doing. I would have liked to have done more than what I actually did. I realized that some of my plans were written with good intentions, but due to time and classroom management constraints, those plans never made it to fruition. However, based on what we were able to accomplish, I found that I worked well with the small group I worked most with, in terms of providing them with needed supports. I frequently provided them with re-teaching, read-alouds, note-taking and dictation, as well as behavior prompts. I was exceedingly happy that the students in my group were noticeably better behaved than the class as a whole.

I have continued to volunteer in this classroom, on a weekly basis, outside of the work I did on the Unit Plan. I believe that the teacher, despite having close to 30 years of teaching experience, is in way over her head. I have assisted her in continuing to work with my small groups, administering benchmark tests, and helping with a frog dissection lab, among other things. I have also taken a more active role in terms of classroom management. As of this

writing, I am a Teacher's Assistant with no pay. However, I plan to continue in this role until the end of the school year. I believe I am needed in that classroom, and sometimes, simply being needed outweighs the rewards of a paycheck.

## **Appendix**

## Worksheet 1



# The Respiratory System

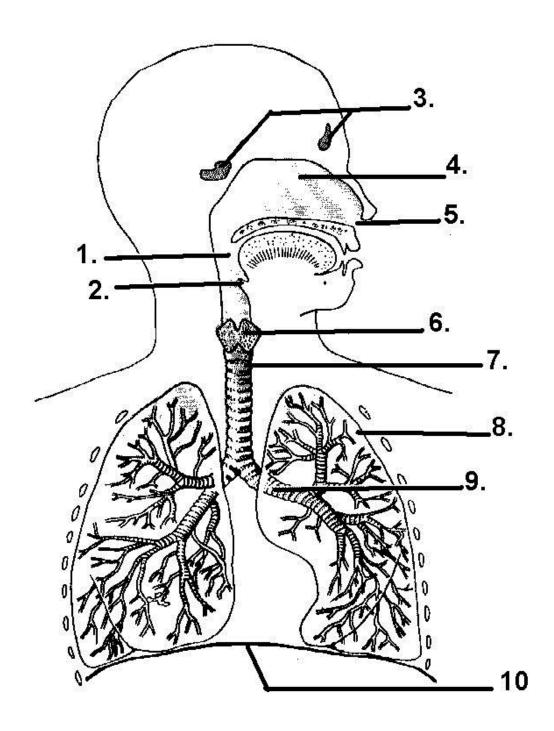
Use the words in the box to fill in the blanks.

air	oxygen	inhale	exhale	
lungs	trachea	respiratory	cough	
carbon dioxide	yawn	bronchi	pharynx	
hiccup	diaphragm	water vapor	nose	
mouth	sneeze	blood		
All animals need	to m	to make energy from food. We get this oxygen		

All animals need	s need to make energy from food. We get this oxygen that we breathe. In order to get the oxygen into the blood				
from the					
where it can be transp	ported to the rest of the body, the air	travels through a system			
of organs called the _	system.				
When you	, air enters the body through	the			
	From there it passes through the				
forces air into the	and food into the eso	phagus. The air travels			
down the trachea into	two branching tubes called	and then on			
into the	·				
In the lungs avvisor fr	om the air enters the	A+ +ha cama +ima			
	leaves the blood and				
	. Some				
•	, which is why mirrors get foggy when yo the muscle that controls the lungs.	ou breathe on them. The			
It is important to kee	p the respiratory system clear so oxyge	en can keep flowing into			
your body. If somethi	ng gets in your nose and irritates it, you	1			
	If something gets in your trachea	or bronchi and irritates			
it, you	If something irritates your did	aphragm, you			
	Finally, if the brain thinks you are not				

# Worksheet 2

Label the parts of the respiratory system.



# **Rubric for Group Research Project**

Student names:
Poster includes:
Name of illness:/5 points  Specific details about illness:/5 points  Whether illness is environmental, behavioral, or both:/5 points  Is this illness contagious?/5 points  Is this illness fatal?/5 points  How is this illness treated?/5 points  Which group(s) of people does it primarily affect?/5 points
Neatness:/10 points Used Color:/5 points
Oral presentation:  Speaker demonstrated knowledge of the illness:/20 points Speech was easy to hear and understand:/10 points All members participated in either the writing or the presentation:/20 points
Overall score/grade
/100 points
Comments:

### References

- Barrier, H., Hughes, C., Schumaker, J., Deshler, D., & Mercer, C. (1993). The Test-Taking Strategy. *The University of Kansas Center for Research on Learning*, 1-3.
- Boudah, D. J., Lenz, B. K., Bulgren, J.A., Schumaker, J. B., & Deshler, D. D. (2000). Don't waterdown! Enhance content learning through the unit organizer routine. *Teaching Exceptional Children*, 32(3), 48-56.
- Dieker, L. A. (2009). The co-teaching lesson plan book. *Special Education Technology*Practice, 11(1), 5.
- Ellis, E. S. (2000). The LINCS vocabulary strategy. Lawrence, Kansas: Edge Enterprises, Inc.
- Kalfus, G.R. (1984). Peer-mediated intervention: A critical review. Child and Family Behavior Therapy, 16, 17–43.
- Lenz, B. K., Deshler, D. D., & Kissam, B.R. (2004). *Teaching content to all: Evidence-based inclusive practices in middle and secondary schools*. Boston: Pearson Education.
- McMaster, K. N., & Fuchs, D. (2002). Effects of cooperative learning on the academic achievement of students with learning disabilities: An update of tateyama-sniezek's review. *Learning Disabilities Research and Practice*, 17(2), 107-117.