



To: Board of Education  
From: Mary Washbush, Director of Curriculum and Student Learning  
Re: **February 8, 2011 Agenda Item 4A – 2011-2012 ACE Middle School Courses**

### **Executive Summary**

**Presentation:** A brief overview of the proposed changes will be provided by Eileen Depka.

**Background/Context:** As a result of the change to the middle school grade 8 ACE structure, courses now meet every day for nine weeks, rather than every other day for nine weeks. This change in structure necessitated changes to several of the existing grade 8 ACE courses, and the creation of five new courses.

These changes were presented to the Curriculum Planning Committee and Board Curriculum Committee on January 26, 2011.

#### **Middle School ACE Courses with expanded content**

Writing Outside the Box  
Mock Trials

#### **Middle School ACE Courses with name changes**

Journalism and Advertising-expanded content, formerly Sports Journalism  
Multi-Cultural Literature-expanded content, formerly African American Literature  
What Makes Me, Me-combination of the former Genetics and The Amazing Human Body courses

#### **New Middle School ACE Courses:**

Circling Math  
Patterns? Are You Fibbing?  
What's In The News  
Traveling Through the Human Body  
Science Exploration

**Alternatives/Recommendation:** None at this time

**Budget:**

**Recommended Board Motion:** None

**Attachments:** Course outlines for new ACE courses

## Circling Math

**Course Description:** The circle will be the center of geometric explorations. Students will compare, identify, and draw conclusions regarding the geometric properties of a circle. Hands on and problem solving activities will be incorporated throughout.

### Outcomes

Students will be able to ...

1. Identify the vocabulary.
2. Create specific geometric shapes out of a circle utilizing a series of folds.
3. Explore and discover relationships that occur between geometric shapes created within a circle.
4. Determine perimeter and area of geometric shapes created within a circle.
5. Develop ratios formed between perimeter and area of geometric shapes created within a circle.
6. Create platonic solids using geometric shapes created within a circle.

## Patterns? Are You Fibbing?

### Course description:

The main focus of this course is patterns. Students will explore patterns as they occur in nature, investigate the famous Fibonacci sequence, and delve into Pascal's Triangle to name a few.

**General Template – ACE Courses**

<b>Course Name: What's in the News</b>			
<b>Course Description:</b> We are not alone!! In this course you will use multimedia to examine, analyze, and discuss local, national, and world events and how they impact your life.			
<b>Standards Emphasized:</b>			
<b>Standard/Power Standard (written out in words)</b>	<b>Focus Area</b>	<b>Know and be able to do's</b>	<b>How This is Done</b>
Identify and explain how current events impact the lives of individuals and groups.	Current Events	Understand how newsworthy events impact countries and students themselves	Select newsworthy events and determine their impact
		Learn how world leaders determine the direction of nations	Use tables, charts, and graphs to obtain information
			Assess impact of world leaders
			Read and interpret text

**Learning Activities: (Each focus area and all know and be able to do's should be accounted for in this portion of the template).**

General Template – ACE Courses

<b>Course Name: Traveling Through the Human Body</b>			
<b>Course Description: Attention future doctors, nurses, veterinarians and anyone else who is interested in Biology or science—this is the ACE class for you. In this course students will actively investigate major human body systems and their interactions. Learning is lab-based and involves investigations on various systems including the nervous, circulatory, and respiratory system. Understanding of the human body will deepen through exploration of diseases and their effects on the systems.</b>			
<b>Standards Emphasized: Examine the structure and functions of the human body and determine how they are related.</b>			
<b>Standard/Power Standard (written out in words)</b>	<b>Focus Area</b>	<b>Know and be able to do's</b>	<b>How This is Done</b>
<b>Examine the structure and functions of the human body and determine how they are related.</b>	Structure of body systems	Identify the organs and structures of the human body systems... understand relationship between structure and function.	Students learn organs and other structures from text. Students make connections from learning. Students investigate functions of systems from manipulation during an experiment.
	Function of body systems	The importance of making good decisions which affect their health and safety. Understand how life choices can affect a variety of body systems.	Students investigate function of systems further through focus on diseases of various body systems and how life choices influence these diseases. Example – emphysema from smoking.
	Homeostasis	The definition of homeostasis and examples of how body systems maintain homeostasis.	Through lab investigations, students explore how body is designed and effectively maintains homeostasis of internal environment.
	Lab investigations	Problem solving strategies used to answer a question. Investigate a problem, gather relevant data, and use it to draw logical conclusions.	Experiments.
	Presentation of investigation results	Successfully communicate all of the required information in a clear and concise manner whether written or oral.	Presentations of data after experiments and investigations.

**Learning Activities: (Each focus area and all know and be able to do's should be accounted for in this portion of the template).**

Students will spend approximately 2 weeks on various body systems – e.g. circulatory, respiratory, nervous, and excretory. During this time, the students will learn the structures and functions of structures for each system. Students will then further investigate each system through lab investigations. See below:

- Nervous System – After learning basic structures and functions of system, students will investigate of touch receptor sensitivity. Prediction of sensitivity level of back and front of hand. Compile data and predict data for future explorations – such as touch sensitivity of foot, arm, back, etc. Exploration of reflex timing.
- Respiratory System – After learning basic structures and functions of system, students will investigate lung capacity and exploring possible correlations of lung capacity and other variables of a human body, such as height, gender, activity level, etc. Students explore the effect of exercise on respiration rate and how respiration rate helps maintain internal homeostasis. Students explore the effect of smoking on respiratory system through a simulation of emphysema.
- Circulatory System – After learning basic structures and functions of system, students will investigate how exercise affects a person's heart rate. Students will use data to predict heart rate after various amounts of exercise. Students will also explore the maintenance of homeostasis through heart rate.
- Excretory System – After learning basic structures and functions of system, students will investigate composition of urine and how urine analysis is an indicator of disease. Students then receive anonymous patient urine samples and predict presence of various diseases and subsequent steps for patient.
- Disease relationships to systems – students investigate various diseases and collaborate information of disease affects on multiple body systems.
- Model of human body – students create a model of the human body and present the relationship of structure and function of various organs and organ systems.

**General Template – ACE Courses**

<b>Course Name: Science Explorations</b>			
<b>Course Description: Would you like to DO science, instead of simply learn about it? Do you enjoy working in teams and using creative problem solving methods to meet challenges? Did you enjoy the Rube Goldberg Competition last year? If so, then Science Explorations is the course for you! In this class, students will develop their scientific skills by actively participating in a number of scientific problem-solving and critical thinking activities. Along the way, the students will investigate various scientific concepts and make real-life connections.</b>			
<b>Standards Emphasized:</b> Apply the skills (including technology) scientists use in their search for the truth.			
<b>Standard/Power Standard (written out in words)</b>	<b>Focus Area</b>	<b>Know and be able to do's</b>	<b>How This is Done</b>
Apply the skills (including technology) scientists use in their search for the truth.	Critical thinking	Problem solving strategies used to answer a question	– Students actively participate in various problem-solving activities described below.
	Scientific Method	Investigate a problem, gather relevant data, use it to draw logical conclusions	
	Communication and working in a team	Successfully communicate all of the required information in a clear and concise manner whether or oral.	

**Learning Activities: (Each focus area and all know and be able to do's should be accounted for in this portion of the template).**

Students are actively participating in a variety of activities. These include:

- Black box investigation – students try to determine an unseen shape inside a closed container.
- Investigation of heat – building of an insulated container, testing its efficiency, and revising the design for a second test.
- Clear and concise instructional writing experience – students are given an object. One partner writes the instructions and the other, without having seen the object attempts to rebuild the object by following the directions of the partner only.
- Building and testing of catapults for accuracy – Students build and gather data about catapults. Use gathered data to accomplish a challenge.
- Investigation of light reflection – Students attempt to accomplish a challenge by discovering law of angle of reflection.
- Engineering a working car to meet specific distance criteria.
- Exploring chemistry and biology within an everyday recipe.