

Course Title:

Cognetics

Length:

Six months
Grades 7 & 8

Schools:

Pierrepoint
Union

RUTHERFORD PUBLIC SCHOOLS
Rutherford, New Jersey

GIFTED AND TALENTED DEPARTMENT

COGNETICS
MINI-COURSE
GRADES 7 & 8

1. Introduction/Overview/Philosophy

Cognetics has its basis in the Latin word “cognetio” meaning “to know or perceive.” It is a sport of the mind. Participants are challenged to solve specific problems and present their solutions at Creativity Expositions. It is designed to improve general thinking skills and to develop creative problem-solving techniques. In addition to learning specific problem-solving techniques, students will also learn question-creating techniques. Cognetics encourages students to employ divergent, flexible, and innovative thinking; it helps students to develop their reasoning ability and to learn the value of obtaining, analyzing, and synthesizing a variety of resources in order to solve specific challenges. The course begins by introducing techniques through individual and group exercises. During the program, students will choose to solve one of four problems chosen by the National Talent Network specifically for the Cognetics Exposition. Each problem requires knowledge, comprehension, application, analysis, synthesis, and evaluation to solve. This program encourages thinking skills and teamwork while spanning a variety of disciplines and content areas.

2. Objectives

- a. Students will be able
 1. To gather and use information for research on the selected problems (1.5, 3.1, 3.5, 8.1);
 2. To understand and apply basic and advanced concepts of statistics and data analysis to interpret research topic information (4.1, 4.4, 4.5, 5.3);
 3. To effectively use mental processes that are based on identifying similarities and differences (5.3);
 4. To use divergent, flexible and innovative thinking to formulate questions about a selected topic (5.1, 9.2);
 5. To use divergent, flexible and innovative thinking to formulate solutions to selected problems (5.1, 9.2);
 6. To cultivate teamwork skills through effective interaction with the members of the Cognetics team (9.2);
 7. To refine oral and written communication skills (3.2, 3.3, 3.4);
 8. To effectively communicate ideas, thoughts, and feelings through performance (1.2, 1.3, 1.4);
 9. To develop skills in self-direction and independent learning (9.2).

3. Course Outline

The course focuses on the selected challenges for the Creativity Exposition held as a culmination of the National Talent Network's (EIRC) Cognetics program each year. The challenges include three parts – the problem, the challenge, and the validation. The problem consists of a simulation that must be solved through the creation of mechanical, artistic, communicative, social, or psychological products. The challenge portion involves academic research. It provides teams with the opportunity to increase their knowledge and be better prepared for the validation exercise. The validation exercise is unknown to the team until it is presented to them to solve at the Creativity Exposition. This component is included for validating student authorship. The validation may include adjusting the problem's solution or a parallel problem.

A. Skill Building

Early weeks of the course cover exercises designed to develop and build the skills used in the creative problem-solving and question-creating process.

1. Brainstorming
2. Categorizing and increasing flexibility
3. Evaluating
4. Analytical and critical thinking

B. Applying the Skills

1. Research the topic.
2. Make a plan and checklist to solve the problem.
3. Decide on a theme for Creativity Exposition skit.
4. Use research and primary sources to brainstorm, improve, and create dialogue for skit.
5. Work on extension of both the abstract/intellectual and abstract/aesthetic refinement of skit through elaboration in the five artistic modes – music, drama, dance, visual arts, and creative writing and through the five senses – hearing, seeing, smelling, feeling, and tasting.
6. Write validation summary speech.
7. Complete poster for Creativity Exposition parade.

C. Select and train student judges.

D. Attend Creativity Exposition. Present problem solutions and skits for Exposition judges.

4. New Jersey Core Curriculum Content Standards

The following New Jersey Core Curriculum Content Standards are integrated into this multidisciplinary course:

Visual and Performing Arts List of Standards

- 1.2 (Creation/Performance) All students will utilize those skills, media, methods, and technologies appropriate to each art form in the creation, performance, and presentation of dance, music, theater, and visual art.
- 1.3 (Elements and Principles) All students will demonstrate an understanding of the elements and principles of dance, music, theater, and visual art.
- 1.4 (Critique) All students will develop, apply, and reflect upon knowledge of the process of critique.
- 1.5 (History/culture) All students will understand and analyze the role, development, and continuing influence of the arts in relation to world cultures, history, and society.

Language Arts Literacy List of Standards

- 3.1 (Reading) All students will understand and apply the knowledge of sounds, letters, and words in written English to become independent and fluent readers and will read a variety of materials and texts with fluency and comprehension.
- 3.2 (Writing) All students will write in clear, concise, organized language that varies in content and form for different audiences and purposes.
- 3.3 (Speaking) All students will speak in clear, concise, organized language that varies in content and form for different audiences and purposes.
- 3.4 (Listening) All students will listen actively to information from a variety of sources in a variety of situations.
- 3.5 (Viewing and media literacy) All students will access, view, evaluate, and respond to print, nonprint, and electronic texts and resources.

Mathematics List of Standards

- 4.1 (Numbers and numerical operations) All students will develop number sense and will perform standard numerical operations and estimates on all types of numbers in a variety of ways.
- 4.4 (Data analysis, probability, and discrete mathematics) All students will develop an understanding of the concepts and techniques of data analysis, probability,

and discrete mathematics, and will use them to model situations, solve problems, and analyze and draw appropriate inferences from data.

- 4.5 (Mathematical processes) All students will use mathematical processes of problem solving, communication, connections, reasoning, representations, and technology to solve problems and communicate mathematical ideas.

Science List of Standards

- 5.1 (Scientific processes) All students will develop problem-solving, decision-making and inquiry skills reflected by formulating usable questions and hypotheses, planning experiments, conducting systematic observations, interpreting and analyzing data, drawing conclusions and communicating results.
- 5.3 (Mathematical applications) All students will integrate mathematics as a tool for problem-solving in science, and as a means of expressing and/or modeling scientific theories.

Technological Literacy List of Standards

- 8.1 (Computer and information literacy) All students will use computer applications to gather and organize information and to solve problems.
- 8.2 (Technology education) All students will develop an understanding of the nature and impact of technology, engineering, technological design, and the designed world as they relate to the individual, society, and the environment.

Career Education and Consumer, Family, and Life Skills List of Standards

- 9.2 (Consumer, family, and life skills) All students will demonstrate critical life skills in order to be functional members of society.

3. **Proficiency Levels**

This mini-course is offered to students in grades 7 & 8 who have qualified for the Gifted and Talented Program.

4. **Methods of Assessment**

a. Student Assessment

The teacher will provide a variety of assessments which may include, but are not limited to, the following: teacher observation of individual and group exercises, class discussions, research assignments, and evaluation of student products by the National Talent Network (EIRC) at the annual Creativity Exposition.

- b. **Curriculum Assessment/ Teacher Assessment**
The teacher/ Gifted and Talented Department coordinator will review this course periodically.
5. **Grouping**
Students self-select this mini-course in grades 7 & 8.
6. **Articulation/ Scope & Sequence/ Time Frame**
Approximately six months, following the schedule for the Creativity Exposition set by the National Talent Network. Students meet for a 90-minute period each week.
7. **Resources**
- a. **Speakers**
Speakers may be recruited depending on the topics selected.
- b. **References**
1. Current news articles/editorials
 2. On-line sources
 3. Selected research books
- c. **Texts**
There is no text for this course. Students solve problems provided by the National Talent Network specifically for that year's Exposition.
8. **Methodologies**
Methods include but are not limited to :
- Class discussion
 - Cooperative learning
 - Individual and group research
 - Brainstorming
9. **Suggested Activities**
- Team-building activities
 - Skill-building activities
 - Exploring multiple intelligences
 - Researching
10. **Interdisciplinary Connections**
The Cognetics Program is interdisciplinary in the variety of problems presented to the students to solve. Students are also encouraged in creativity as they prepare their solution skits. As a team activity, Cognetics encourages individual responsibility and cooperation among team members.

11. **Professional Development**

As per the PDP/100 hour statement: the teacher will continue to improve expertise through participation in a variety of professional development opportunities. Specialized professional development for teachers in the Gifted and Talented Department is offered through the Bergen County Consortium of Teachers of the Gifted (BCCTG), the New Jersey Association for Gifted Children (NJAGC), and the Summer Institute for the Gifted (SIG). Additionally, the National Talent Network (EIRC) provides training for coaches each fall.