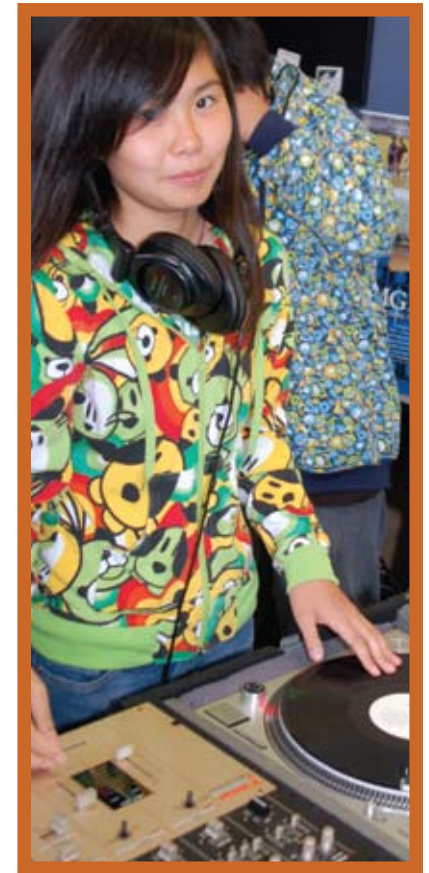


# THE BEST OF BOTH WORLDS



## Aligning Afterschool Programs with Youth Development Principles and Academic Standards



**SUNSET NEIGHBORHOOD  
BEACON CENTER**  
A SAFE PLACE FOR YOUTH AND FAMILIES TO LEARN AND GROW

### **Sunset Neighborhood Beacon Center**

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**ASPIRAnet**

*Raising Hope. Empowering Community.*

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## **ABOUT THE SUNSET NEIGHBORHOOD BEACON CENTER**

The mission of the Sunset Neighborhood Beacon Center (SNBC) is to provide supports and opportunities to ensure the healthy development of children, youth, and adults in the Sunset District of San Francisco. Founded in 1996, SNBC's over-arching objective is to strategically direct a significant concentration of resources to youth and families in underserved populations in the Sunset and to help engage residents in community-building decisions and processes. The programs and services offered by SNBC are known for their exceptional quality and are free of charge. Key programs include: nationally-recognized daily afterschool programs at one middle school and four elementary schools; computer literacy classes for youth and adults; expansive digital arts and media programs; neighborhood-based community organizing; school based case management services for at-risk youth; and recreation programs for children, teens, and their families.

## **ABOUT ASPIRANET**

Aspiranet, founded in 1975, is the lead agency for the Sunset Neighborhood Beacon Center. Aspiranet provides a continuum of services that help children grow into healthy, successful adults. By providing these services across the state of California, Aspiranet has created a network of community-focused programming that helps communities better love and care for their children. Each year Aspiranet engages over 9300 children and families in 35 locations throughout California. Aspiranet's areas of expertise include adoption, foster care, education, afterschool opportunities, in-home family programs, and community collaborations.

Aspiranet leverages the resources of its statewide network, its decades of expertise, and its local community relationships to get maximum results out of limited budgets. The skilled and caring staff are passionate about making a difference. Aspiranet is working to create a better future for California's communities today.

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***Note: This is a web/print friendly version of this publication, wherein all blank and print-heavy pages have been omitted. The page numbers above have been edited accordingly.***

# Introduction

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Afterschool programs provide opportunities for youth to grow academically and socially through teaching strategies that are different than those used during the typical school day. For instance, afterschool programs have flexible schedules, which allow organizations the time and space to offer in-depth projects that are highly interesting to students. Afterschool programs have other advantages: low student-to-instructor ratios; more time to spend on specific projects; more flexibility for field trips; informal learning environments that encourage active participation; and greater access to parents because programs often extend into the early evening. Additionally, afterschool programs employ a widely skilled and diverse group of workers who can connect with youth in new and meaningful ways.<sup>[1]</sup>

Although afterschool programs offer exciting and interest-driven activities, they can still meet academic objectives aligned with specific content standards, which have been adopted by the California State Board of Education and published by the California Department of Education (CDE). The Sunset Neighborhood Beacon Center (SNBC) provides a safe after school setting where youth have fun in an engaging learning environment. SNBC uses innovative methods for reaching academic standards through project-based learning clubs that foster skill building in an academically rich and motivating atmosphere. SNBC's afterschool programs allow youth to determine which clubs are offered in their afterschool program, increasing their responsibility for and interest in their learning. With this freedom, students choose clubs focused on topics not traditionally covered during the school day, such as movie making, robotics, computer programming, and hip-hop dancing. Within these clubs youth examine complex, real-world issues, and improve their problem-solving skills while gaining an understanding of the subject matter. Technology is embedded into each project-based learning club, further strengthening academic content standards and computer literacy.

SNBC's afterschool programs are grounded in youth development practice by creating settings where youth can connect with adults and peers in a safe and constructive way. SNBC not only integrates CDE content standards that support youth academic achievement, but it also helps youth gain competencies and skills that will propel them forward into successful adolescence and adulthood. Project-based learning lends itself well to this youth development framework because it provides youth the opportunity to build relationships and take on leadership roles. SNBC developed its afterschool programs so they would model and embody the best practices and principles of youth development.

This publication is intended to contribute to the growing body of work that is deepening the quality of afterschool programming. Consequently, the following pages document the integration of content standards in SNBC's project-based learning clubs, while demonstrating that youth development and standards-based education can coexist.

[1]  *Holding California Afterschool Programs Accountable*; Community Network for Youth Development, in Partnership with the California Committee on Afterschool Accountability; Sam Piha; Winter 2006.

## Project-Based Learning Clubs

SNBC decided to develop project-based learning clubs after conducting an in-depth internal self-assessment of its original programs. SNBC staff met with a student focus group to learn what youth wanted to do after school and what would motivate them to come to the afterschool programs. The students provided important feedback that spurred the development of project clubs. SNBC shifted its focus from primarily offering homework centers to offering clubs with a project-based learning approach. Also prompted by youth feedback, SNBC subsequently added a technology component into each project club. Attendance began rising as youth realized that SNBC's afterschool program involved much more than just sitting at a desk. Instead, the program offered choices, collaborative opportunities for instructors and students, the ability to plan projects, and the chance to learn real-world skills.

Over time, SNBC program staff noted that youth in the project clubs were not only gaining important developmental skills, but were also meeting important academic objectives. To deepen program quality, SNBC decided to document how its programs at A.P. Giannini Middle School align with California Department of Education content standards. Instructors were trained to use the standards and then developed activities that specifically meet these academic skills. SNBC created a grid to document how the project-based learning clubs were meeting standards for language arts and other academic areas. Instructors also designed additional lesson plans for reference and development purposes.

Although the project-based learning clubs change frequently according to student interest, SNBC's focus on standards and youth development does not. Youth have opportunities to participate and contribute to challenging and engaging projects in a safe and inclusive setting. Within SNBC's afterschool programs, youth develop long-lasting relationships and receive quality instruction that prepares them for a strong academic future.

# Project Club Outlines and Lesson Plans

---

The following project clubs are outlined:

- Newsletter
- MOUSE Squad
- Movie Making
- Media Art
- Science and Robotics
- Urban Dance
- Urban Music

Each Project Club Outline provides an overview of the project-based learning club and consists of several key sections, including a Description, Youth Development Supports and Opportunities, Goals and Standards, Technology, Evaluation Strategies, Topics Covered, and Structure of the Club.

For the Goals and Standards section, instructors developed an over-arching goal for their project club. They also created specific goals for meeting technology and youth development objectives. These goals were then mapped to the lesson plans or activities.

Additionally, instructors identified strands of the CDE standards to formally address in their club curriculum. Academic goals for their project club integrated these standards. These goals/standards were also applied to each lesson plan or club activity.

Following each Project Club Outline, this publication includes sample lesson plans that integrate the goals/standards described above. Templates for Project Club Outline and lesson plans are included at the end of this publication.

At the end of this publication there are templates for both Project Club Outlines and lesson plans, as well as a Standards Grid detailing all CDE standards addressed within each of SNBC's project clubs.



# Project Club: Newsletter

Instructor: Rebecca Devlin

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## DESCRIPTION

Students create, write, edit, and publish a monthly newsletter, documenting their voice and opinions on personal, afterschool, local, and world affairs. Students develop their writing skills and learn various design techniques while working in a team-oriented environment.

## YOUTH DEVELOPMENT

### Supports and Opportunities

The Newsletter Club functions as a safe space where youth can share their creative ideas, make mistakes in a supportive atmosphere, and is a place in which their success is not measured by a letter grade. Students who are not necessarily in the highest quartile, according to SAT 9 scores and school records, achieve in the Newsletter Club because they are intrinsically motivated to produce work that will be showcased in the public domain. Youth build relationships with each other through the various writing and kinesthetic activities and gain confidence through interviews and survey research.

The Newsletter Club functions as a team where each youth can assume an active role. Students might feel overwhelmed at the beginning, but after going through the process several times and with the support of the instructor, youth gradually take over the newsletter during the year. They assume the leadership roles of editor and lead the meetings, as well as make the decisions about the content and the deadlines. Each student has a responsibility, and they learn to communicate together in order to move the project forward. Youth develop confidence in themselves and in the team by learning how to utilize public feedback and self/peer evaluation to change their mistakes into successes. The skills they acquire are pragmatic and academic, as they interact with the afterschool and SNBC community to highlight important local and global events.

## GOALS AND STANDARDS

### General Goal

- To produce a monthly newsletter that is written, edited, and published by students.

### Youth Development Goal

- Students work together to complete the newsletter. Over time, youth assume leadership positions as the role of the instructor evolves into more of an “advisor” role (see Structure of Club).

### Technology Goal

- All students are able to design a page on Microsoft Publisher (see lesson plan “Publisher Tutorial”).

### Academic Goals

- Students become peer tutors to help each other improve organization and consistency of ideas in writing. (CDE standards met in lesson plan “Copy Editor.” English-Language Arts: Grade 6 Writing 1.0, 1.6.)
- Students become more observant and perceptive of nonverbal cues. (CDE standards met in lesson plan “Mock Press Conference/Interview.” English-Language Arts: Grade 6 Listening and Speaking 1.0, 1.1.)

## TECHNOLOGY

- Microsoft Word, Microsoft Publisher, Adobe Photoshop, Adobe InDesign
- Digital camera
- Scanner

## EVALUATION STRATEGIES

- Final product: self, peer, and instructor evaluation
- Class discussions
- Instructor observations: growth of leadership skills, writing skills, etc.
- Writing samples

## TOPICS COVERED

- Newsprint versus other writing genres
- Roles/jobs of newsletter publication: Chief Editor, Art Editor, Copy Editor, Design Editor, Writer, Sports Writer, etc.
- Writing news articles
- Photojournalism
- Comic writing/drawing
- Editorial writing
- Sports writing
- Headlines and leads
- Internet research
- Advertising
- Grammar and usage
- Current events

## STRUCTURE OF CLUB

Students choose what role they want to have in the making of the newsletter and can work their way up to leadership positions. In following with the youth development model, the instructor becomes less of a “teacher” and more of an “advisor” as the year progresses. The instructor accomplishes this through developing contracts with the reporters who agree to accomplish an article. The reporters write their own contract that includes what steps they will take to complete the article (research, lead, angle, etc.). The Chief Editor makes sure that the reporters follow the timelines for the completion of the article.

The instructor also uses a point system for motivation. Students who complete certain tasks receive points and are rewarded for their efforts based on the amount of points they receive.

### Weekly Schedule

**Monday:** Staff meetings with students

**Tuesday & Thursday:** Specific writing activities

**Wednesday:** Computer lab time for researching, designing, editing/proofreading

**Second Session on Tuesday:** Computer lab time for advanced newsletter design



## LESSON PLAN: “ABOUT US”

Submitted by: Rebecca Devlin

Project Club: Newsletter

### DESCRIPTION

Students will produce a mini-newsletter, called “About Us,” in order to build community within the club and to learn basic skills applicable for developing an afterschool newsletter. Using Microsoft Word and Publisher, students will individually document their life through writing and photo images. Students then compile their work into one mini-newsletter.

### OBJECTIVES

Students will:

- Learn how to use a digital camera and transfer the digital images to a computer.
- Learn to create a page using Microsoft Publisher, including how to create text and insert digital photos.
- Get to know each other better and begin building relationships in the club.

### MATERIALS

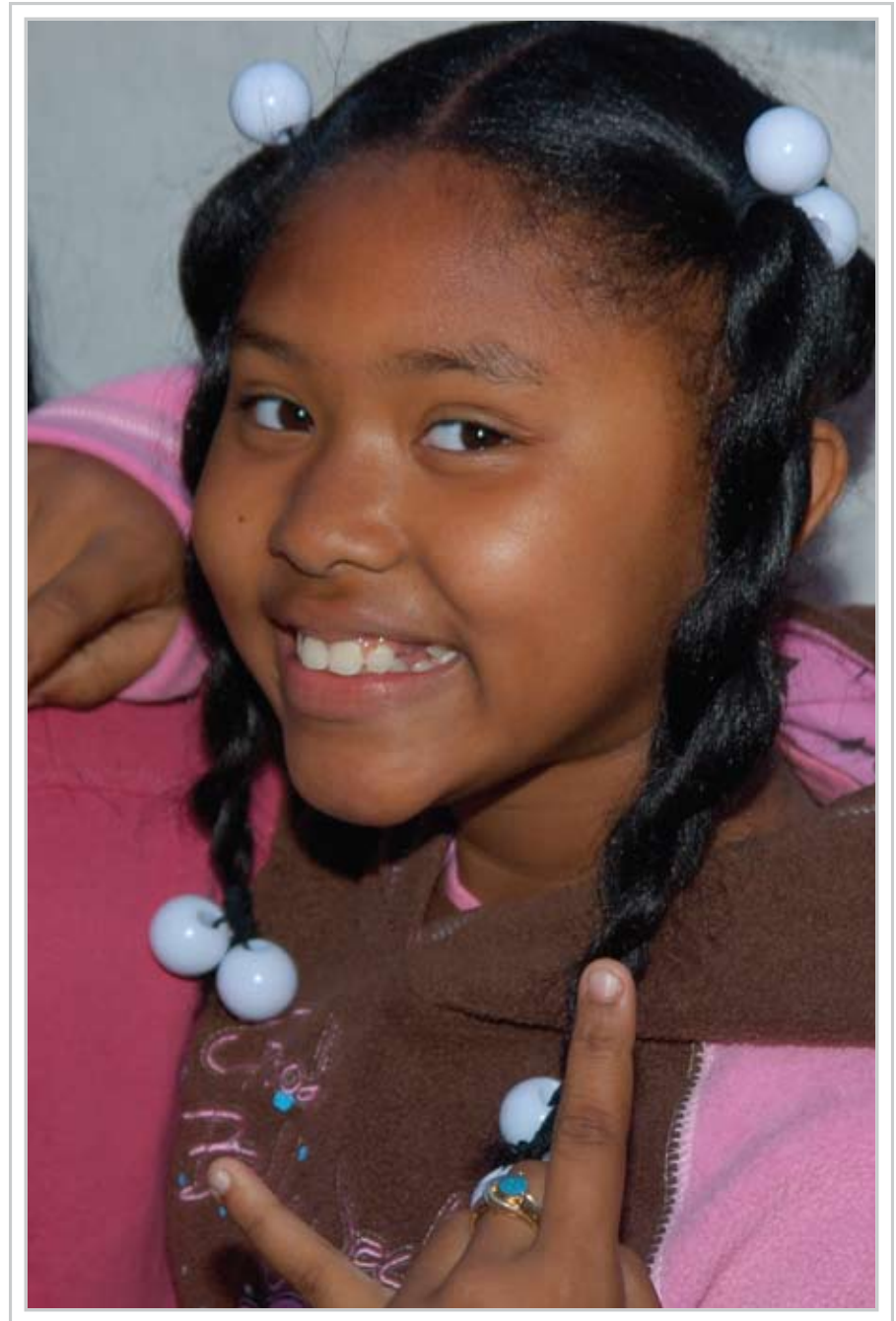
Computers, Microsoft Word, Microsoft Publisher, digital camera, hand-out of questions, printer

### ANTICIPATORY SET

Instructor introduces the assignment and reviews the student roles within the Newsletter Club, including Chief Editor, Assistant Editor, Photographer, Art Designer, etc. The club decides on a title for their mini-newsletter; in this example, it is “About Us.”

### PROCEDURES

1. Following the directions given, students respond to the questions on the handout by writing a short paragraph on a Microsoft Word document.



2. Students choose a font, spell check their work, and then save their document on the server.
3. With a partner, students transfer their work onto one Microsoft Publisher page and create a headline for each student's paragraph.
4. Students take digital photos of their partners and then insert the photo onto the Publisher page.
5. Students save their page on the server, and then print.
6. Once all pages are complete, students compile the pages to make a mini-newsletter called "About Us."

3. Next, you need some photos. To do this:
  - Have your partner take a picture of you.
  - Create a photo box on your Publisher page.
  - Insert the photo on the page.
  - SAVE the Publisher page on the server and PRINT!

When you're done:

- Research the different duties of the newsletter.
- Begin working on a story.
- Start writing interview questions.
- Take the short test to use the digital camera.

### Student Directions

With a partner, you will create a "mini-newsletter"

Each student should:

1. Use Microsoft Word to write a short paragraph that answers eight of the following questions.
  - What is your name?
  - Do you have any pets? If so, what kind?
  - What school are you going to next year?
  - What job do you want in the newsletter club? Why?
  - Do you have any story ideas? If so, what?
  - If you could have any superpower, what would it be?
  - What is your favorite movie?
  - Do you have any brothers or sisters?
  - What is your favorite t.v. show?
  - What is your favorite sport?

Choose a font and SAVE the document on the server as your name.

2. Next, with your partner, you will have to transfer these paragraphs onto one Publisher page. To do this, you need to:
  - Highlight each of the paragraphs and copy them.
  - Open a Publisher page.
  - Create a text box.
  - Paste your paragraph onto your page.
  - Create a title for each paragraph (also known as a headline).

### REFLECTIONS

This assignment works well to train students on the basics of how to create a newsletter page. Students also have an opportunity to learn from each other and build community within the club. After students complete this assignment, they are prepared and confident to begin working on stories, using the digital camera, and conducting interviews.

## CALIFORNIA DEPARTMENT OF EDUCATION STANDARDS

### English-Language Arts: Grade 6 Writing

#### 1.0 Writing Strategies

##### Organization and Focus

1.3 Use a variety of effective and coherent organizational patterns, including comparison and contrast; organization by categories; and arrangement by spatial order, order of importance, or climactic order.

##### Research and Technology

1.5 Compose documents with appropriate formatting by using word-processing skills and principles of design (e.g., margins, tabs, spacing, columns, page orientation).

### English-Language Arts: Grade 6 Written and Oral English Language Conventions

#### 1.0 Written and Oral English Language Conventions

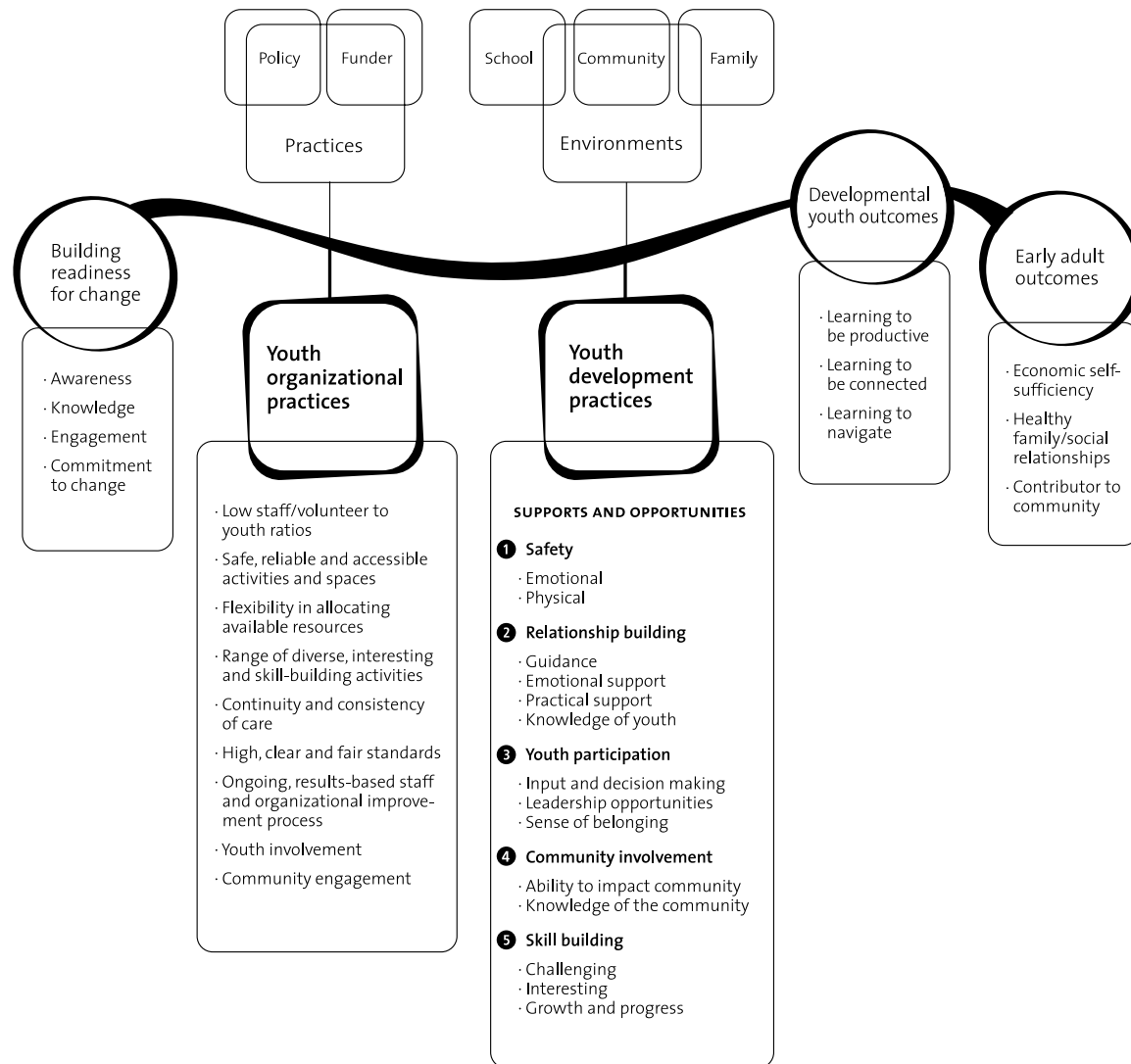
##### Capitalization

1.4 Use correct capitalization.

##### Spelling

1.5 Spell frequently misspelled words correctly (e.g., their, they're, there).

# Youth Development Framework for Practice



# Principles and Practices that Deepen Program Quality

---

The intent of developing this publication is to contribute to the growing body of work aimed at deepening quality in afterschool programs by:

- Documenting the application of CDE standards in project-based learning clubs
- Demonstrating that youth development and standards-based education can coexist

To capture their work, the instructors met with SNBC's Middle School Program Coordinator to create the Project Club Outlines and to receive training on reading and using the CDE standards. Instructors recorded which standards were covered in their project clubs, and these standards are designated with an "X" on the Standards Grid (page 103). Each instructor also chose English-Language Arts standards and content standards relevant to their project club discipline and created project goals that aligned with these standards. Because it was a project goal to meet and master specified academic standards, these standards are designated with a "G" on the Standards Grid. Instructors created lesson plans/activities that sought to meet these "Academic Goals."

The staff then developed two more project goals - one that integrated technology into their project club, and one that was specific to youth development. Lesson plans/activities for the project clubs supported these technology and youth development goals.

Staff continue to document their curriculum through lesson plans mapped to CDE standards. Templates for a Project Club Outline and lesson plan are included in the next section.

## **All practices are rooted in the youth development framework.**

- Programs support a young person's healthy development as a whole person by building safety, encouraging relationship-building, providing opportunities for youth leadership, increasing community involvement, and promoting skill-building.
- Project-based learning clubs and the computer lab provide a safe and unique environment that is conducive to reaching youth development outcomes.
- Student feedback promotes programmatic changes and improvements.
- Instructors are continually trained in youth development practice by internal staff and external consultants.

## **Afterschool clubs follow project-based learning methodology.**

- Instructors are trained to plan and execute project-based clubs, with an emphasis on the development of specific academic and social objectives.

- Students choose their project club.
- Project clubs are student-driven. Students set club goals, coordinate deadlines, and establish project outcomes.
- Instructors facilitate learning through coaching, mentoring, and mediating, using limited direct instruction.

## **Academic content is integrated into the curriculum.**

- Project clubs follow standard-based instruction and integrate California academic standards.
- Project clubs incorporate specific literacy strategies and practice.

## **Technology is embedded into the curriculum.**

- The curricula of the project clubs are constructed using digital video and audio, scanners, and current hardware and software programs.

- Project clubs use software programs that align with state technology standards.
- The Technology Coordinator works alongside the club instructors to assist in project collaboration, troubleshooting, software/hardware instruction, and technology curricula development.
- Project clubs follow the National Educational Technology Standards for students.

**Project clubs measure academic outcomes through “real world” evaluation methods.**

- Students demonstrate mastery of content and technical standards through instructor progress reports, quick skills tests, student and instructor reflections, student self evaluation, public presentations, writing samples, final projects and portfolios in the form of print or digital media (formatted for the world wide web, DVD, or CD), and simulated computer programs.
- Students receive honest critique, evaluation, and feedback from staff and their peers.
- Once students master specific skills, they are given more responsibility and assume mentorship roles to train others on those skills.
- Students receive recognition and praise when deadlines are met and projects are completed.

**Project clubs within the afterschool program collaborate.**

- Project club instructors work simultaneously with other clubs, interweaving projects.
- The Technology Coordinator provides additional resources and bridges for collaboration on technical projects.

**Projects are celebrated through events and publication.**

- Project clubs frequently display their work to the afterschool community, and once per semester, students celebrate their work with parents and staff.
- Project clubs showcase their work to the rest of the school during lunch, faculty meetings, school dances, etc.
- Project clubs promote their work to the public through community festivals, the SNBC website, external websites, etc.



**Mentoring programs allow students to assist in the project clubs/computer lab.**

- Students who have excelled in their programs become mentors in the project clubs/computer lab.
- High school-aged students can earn stipends as Urban Music Club Mentors or as mentors working with middle school project clubs.
- Eighth graders trained in peer tutoring volunteer in the neighboring elementary school programs.

**Project clubs participate in community-building activities.**

- Students and instructors meet daily for “Community Time,” a time for announcements and staff and student presentations.
- Project clubs convene for monthly “Beacon Building” events, where youth from all of the project clubs participate in relay races, trivia games, and team-building activities.



**Collaboration connects the school day with the afterschool day.**

- The Technology Coordinator manages an Open Lab during lunchtime, where Tuesdays are “Girls Only” days to encourage female students to utilize computer technology.
- The Program Coordinator attends monthly faculty meetings where students from the afterschool program showcase their projects on a rotating basis to the school day teachers and administration.
- The Program Coordinator and Project Director meet monthly with the school principal to share updates and to troubleshoot any concerns.
- The Program Coordinator and Project Director meet weekly with the school counselors, dean, and parent liaison to discuss student referrals.
- The Program Coordinator and Project Director communicate regularly with school day teachers to best address individual student needs.

# Standards Grid

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The following grids indicate the standards that are addressed within each project club's curriculum. Because all project clubs have an English-Language Arts component in their curriculum, the standards for English-Language Arts are included for every SNBC offering. Specific content standard strands relevant to each project club are also addressed in the grid.

In the following tables, a "G" represents a standard that was specifically identified by the instructor as a goal of the project club. An "X" indicates a standard that is covered in the project club over the course of the year, but is not necessarily addressed in the sample lesson plans.

The complete listing of content standards adopted by the California State Board of Education for grades K-12 can be found at: <http://www.cde.ca.gov/be/st/ss/>

The performance indicators for grades 6-8 for the National Educational Technology Standards can be found at: <http://cnets.iste.org>



## GRADE 6 READING

<b>1.0 Word Analysis, Fluency, and Systematic Vocabulary Development</b>	X	X	X		X	
<b>Word Recognition</b>						
1.1 Read aloud narrative and expository text fluently and accurately and with appropriate pacing, intonation, and expression.	X	X	X		X	
<b>Vocabulary and Concept Development</b>						
1.2 Identify and interpret figurative language and words with multiple meanings.						
1.3 Recognize the origins and meanings of frequently used foreign words in English and use these words accurately in speaking and writing.		X				
1.4 Monitor expository text for unknown words or words with novel meanings by using word, sentence, and paragraph clues to determine meaning.	X	X				
1.5 Understand and explain “shades of meaning” in related words (e.g., softly and quietly).						
<b>2.0 Reading Comprehension (Focus on Informational Materials)</b>	X	X	X	X	G	X
<b>Structural Features of Informational Materials</b>						
2.1 Identify the structural features of popular media (e.g., newspapers, magazines, online information) and use the features to obtain information.	X	X	X	X		X
2.2 Analyze text that uses the compare-and-contrast organizational pattern.	X	X				
<b>Comprehension and Analysis of Grade-Level-Appropriate Text</b>						
2.3 Connect and clarify main ideas by identifying their relationships to other sources and related topics.	X	X				X
2.4 Clarify an understanding of texts by creating outlines, logical notes, summaries, or reports.	X	X			X	
2.5 Follow multiple-step instructions for preparing applications (e.g., for a public library card, bank savings account, sports club, league membership).	X	X	X	X	G	

G: Specifically identified by the instructor as a goal of the project club.  
 X: Covered in the project club, but not specified as a project goal.

## GRADE 6 WRITING

1.0 Writing Strategies	G	X	G	X	G	X
<b>Organization and Focus</b>						
1.1 Choose the form of writing (e.g., personal letter, letter to the editor, review, poem, report, narrative) that best suits the intended purpose.	X	X	X		X	
1.2 Create multiple-paragraph expository compositions: a. Engage the interest of the reader and state a clear purpose. b. Develop the topic with supporting details and precise verbs, nouns, and adjectives to paint a visual image in the mind of the reader. c. Conclude with a detailed summary linked to the purpose of the composition.	X		X (A,B)			
1.3 Use a variety of effective and coherent organizational patterns, including comparison and contrast; organization by categories; and arrangement by spatial order, order of importance, or climactic order.	X	X				
<b>Research and Technology</b>						
1.4 Use organizational features of electronic text (e.g., bulletin boards, databases, keyword searches, e-mail addresses) to locate information.	X	X	G	X	G	X
1.5 Compose documents with appropriate formatting by using word-processing skills and principles of design (e.g., margins, tabs, spacing, columns, page orientation).	X	X	G			
<b>Evaluation and Revision</b>						
1.6 Revise writing to improve the organization and consistency of ideas within and between paragraphs.	G		G			

G: Specifically identified by the instructor as a goal of the project club.  
X: Covered in the project club, but not specified as a project goal.

## GRADE 6 WRITTEN AND ORAL ENGLISH LANGUAGE CONVENTIONS

1.0 Written and Oral English Language Conventions	X	X
<b>Sentence Structure</b> 1.1 Use simple, compound, and compound-complex sentences; use effective coordination and subordination of ideas to express complete thoughts.	X	X
<b>Grammar</b> 1.2 Identify and properly use indefinite pronouns and present perfect, past perfect, and future perfect verb tenses; ensure that verbs agree with compound subjects.	X	X
<b>Punctuation</b> 1.3 Use colons after the salutation in business letters, semicolons to connect independent clauses, and commas when linking two clauses with a conjunction in compound sentences.	X	
<b>Capitalization</b> 1.4 Use correct capitalization.	X	X
<b>Spelling</b> 1.5 Spell frequently misspelled words correctly (e.g., their, they're, there).	X	X

G: Specifically identified by the instructor as a goal of the project club.

X: Covered in the project club, but not specified as a project goal.

## GRADE 6 LISTENING AND SPEAKING

<b>1.0 Listening and Speaking Strategies</b>	G	G	X	G	X	G	G
<b>Comprehension</b>							
1.1 Relate the speaker's verbal communication (e.g., word choice, pitch, feeling, tone) to the nonverbal message (e.g., posture, gesture).	G		X	X			
1.2 Identify the tone, mood, and emotion conveyed in the oral communication.	X		X	X			
1.3 Restate and execute multiple-step oral instructions and directions.	X	G	X	G	X	G	G
<b>Organization and Delivery of Oral Communication</b>							
1.4 Select a focus, an organizational structure, and a point of view, matching the purpose, message, occasion, and vocal modulation to the audience.			X				
1.5 Emphasize salient points to assist the listener in following the main ideas and concepts.			X		X	X	X
1.6 Support opinions with detailed evidence and with visual or media displays that use appropriate technology.	X	X	X		X		
1.7 Use effective rate, volume, pitch, and tone and align nonverbal elements to sustain audience interest and attention.	X	X	X	X	X	G	X
<b>Analysis and Evaluation of Oral and Media Communications</b>							
1.8 Analyze the use of rhetorical devices (e.g., cadence, repetitive patterns, use of onomatopoeia) for intent and effect.			X				
1.9 Identify persuasive and propaganda techniques used in television and identify false and misleading information.	X		X	G	X		

## GRADE 6 MATHEMATICS (CONTINUED)

Mathematical Reasoning			
<b>1.0 Students make decisions about how to approach problems:</b>	X	G	G
1.1 Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, identifying missing information, sequencing and prioritizing information, and observing patterns.		G	G
1.2 Formulate and justify mathematical conjectures based on a general description of the mathematical question or problem posed.			X
1.3 Determine when and how to break a problem into simpler parts.	X	G	X
<b>2.0 Students use strategies, skills, and concepts in finding solutions:</b>	X	X	X
2.1 Use estimation to verify the reasonableness of calculated results.			X
2.2 Apply strategies and results from simpler problems to more complex problems.	X	X	
2.3 Estimate unknown quantities graphically and solve for them by using logical reasoning and arithmetic and algebraic techniques.			
2.4 Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.			
2.5 Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.			
2.6 Indicate the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.			
2.7 Make precise calculations and check the validity of the results from the context of the problem.			
<b>3.0 Students move beyond a particular problem by generalizing to other situations:</b>	X	X	X
3.1 Evaluate the reasonableness of the solution in the context of the original situation.		X	X
3.2 Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.			X
3.3 Develop generalizations of the results obtained and the strategies used and apply them in new problem situations.	X	X	X

G: Specifically identified by the instructor as a goal of the project club.

X: Covered in the project club, but not specified as a project goal.

## GRADE 6 SCIENCE - FOCUS ON EARTH SCIENCES

<b>Heat (Thermal Energy) (Physical Science)</b>	
<b>3. Heat moves in a predictable flow from warmer objects to cooler objects until all the objects are at the same temperature. As a basis for understanding this concept:</b>	X
a. Students know energy can be carried from one place to another by heat flow or by waves, including water, light and sound waves, or by moving objects.	X
b. Students know that when fuel is consumed, most of the energy released becomes heat energy.	
c. Students know heat flows in solids by conduction (which involves no flow of matter) and in fluids by conduction and by convection (which involves flow of matter).	
d. Students know heat energy is also transferred between objects by radiation (radiation can travel through space).	
<b>Energy in the Earth System</b>	
<b>4. Many phenomena on Earth's surface are affected by the transfer of energy through radiation and convection currents. As a basis for understanding this concept:</b>	X
a. Students know the sun is the major source of energy for phenomena on Earth's surface; it powers winds, ocean currents, and the water cycle.	X
b. Students know solar energy reaches Earth through radiation, mostly in the form of visible light.	X
c. Students know heat from Earth's interior reaches the surface primarily through convection.	
d. Students know convection currents distribute heat in the atmosphere and oceans.	
e. Students know differences in pressure, heat, air movement, and humidity result in changes of weather.	
<b>Ecology (Life Science)</b>	
<b>5. Organisms in ecosystems exchange energy and nutrients among themselves and with the environment. As a basis for understanding this concept:</b>	
a. Students know energy entering ecosystems as sunlight is transferred by producers into chemical energy through photosynthesis and then from organism to organism through food webs.	
b. Students know matter is transferred over time from one organism to others in the food web and between organisms and the physical environment.	
c. Students know populations of organisms can be categorized by the functions they serve in an ecosystem.	
d. Students know different kinds of organisms may play similar ecological roles in similar biomes.	
e. Students know the number and types of organisms an ecosystem can support depends on the resources available and on abiotic factors, such as quantities of light and water, a range of temperatures, and soil composition.	



## NATIONAL EDUCATIONAL TECHNOLOGY STANDARDS (NETS) GRADES 6-8 PROJECT CLUBS MEET THE FOLLOWING PERFORMANCE INDICATORS:

1. Apply strategies for identifying and solving routine hardware and software problems that occur during everyday use.		X					
2. Demonstrate knowledge of current changes in information technologies and the effect those changes have on the workplace and society.							
3. Exhibit legal and ethical behaviors when using information and technology, and discuss consequences of misuse.	X	X	X	X	X		X
4. Use content-specific tools, software, and simulations (e.g., environmental probes, graphing calculators, exploratory environments, Web tools) to support learning and research.	X	X	X	X	X	X	X
5. Apply productivity/multimedia tools and peripherals to support personal productivity, group collaboration, and learning throughout the curriculum.	X	X	X	X	X	X	X
6. Design, develop, publish, and present products (e.g., Web pages, videotapes) using technology resources that demonstrate and communicate curriculum concepts to audiences inside and outside the classroom.	X	X	X	X	X	X	X
7. Collaborate with peers, experts, and others using telecommunications and collaborative tools to investigate curriculum-related problems, issues, and information, and to develop solutions or products for audiences inside and outside the classroom.		X					
8. Select and use appropriate tools and technology resources to accomplish a variety of tasks and solve problems.	X	X	X	X	X	X	X
9. Demonstrate an understanding of concepts underlying hardware, software, and connectivity, and of practical applications to learning and problem solving.		X					
10. Research and evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of electronic information sources concerning real-world problems.		X					

G: Specifically identified by the instructor as a goal of the project club.

X: Covered in the project club, but not specified as a project goal.