

# HIGH SCHOOL EDUCATIONAL SPECIFICATIONS

COMPONENT:

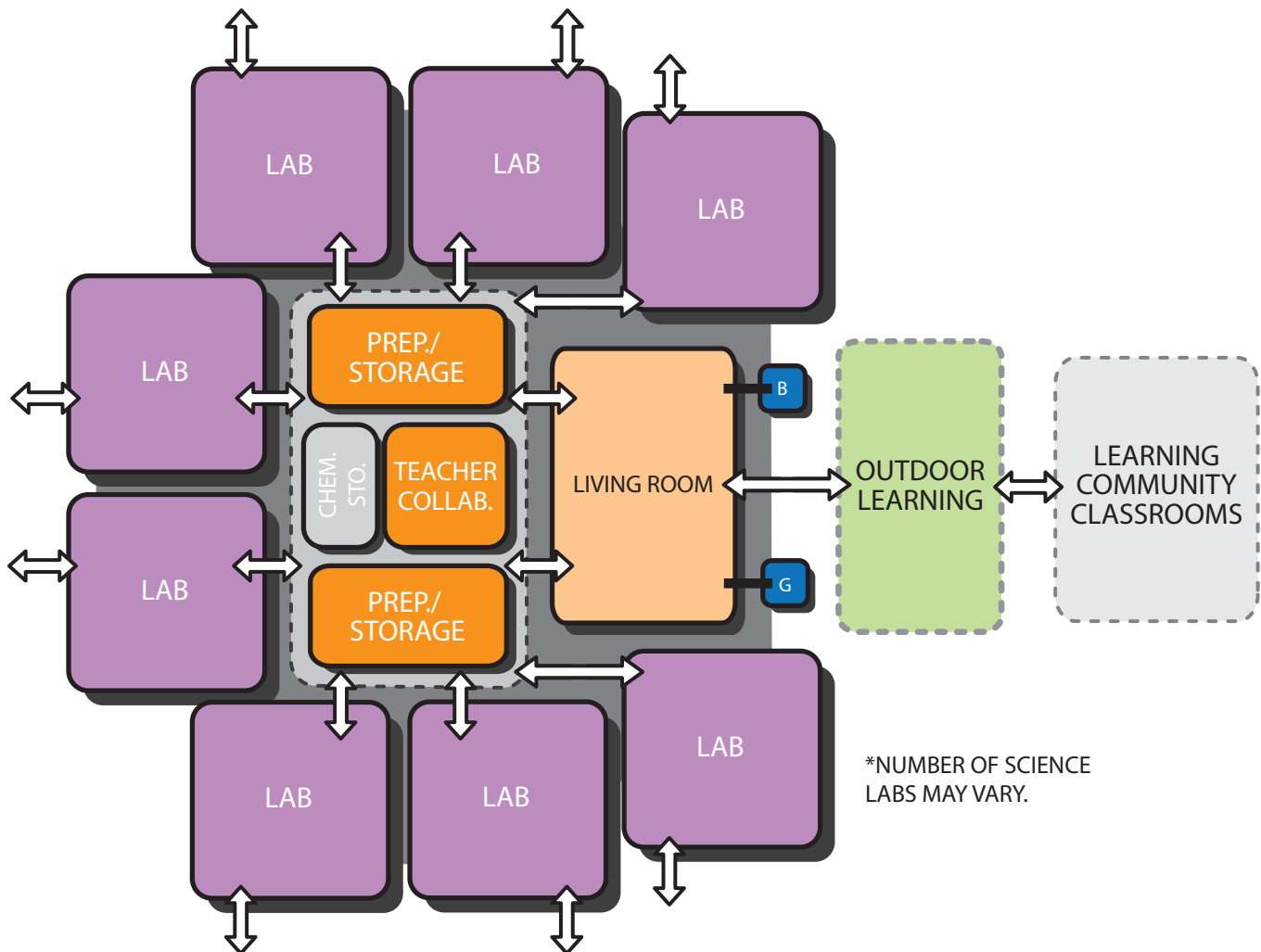
# SCIENCE



## DESCRIPTION/GOALS

- The Science Component houses specialized science classrooms, prep, and work spaces arranged as a department attached to a small learning community. Classroom labs can either be generalized with shared workspaces for specialized procedures or dedicated to various physical, biological, chemistry and general science needs. In all cases, labs should include infrastructure for all 21st-Century Learning environment requirements.
- 21st-Century labs with state-of-the-art technology
- Flexibility for collaborative large and small group activities, as well as individual exploration
- Access to exterior work / demonstration areas

## ADJACENCY DIAGRAM



ROOM TYPE:

## PHYSICS LAB

SIZE: 1500 sf

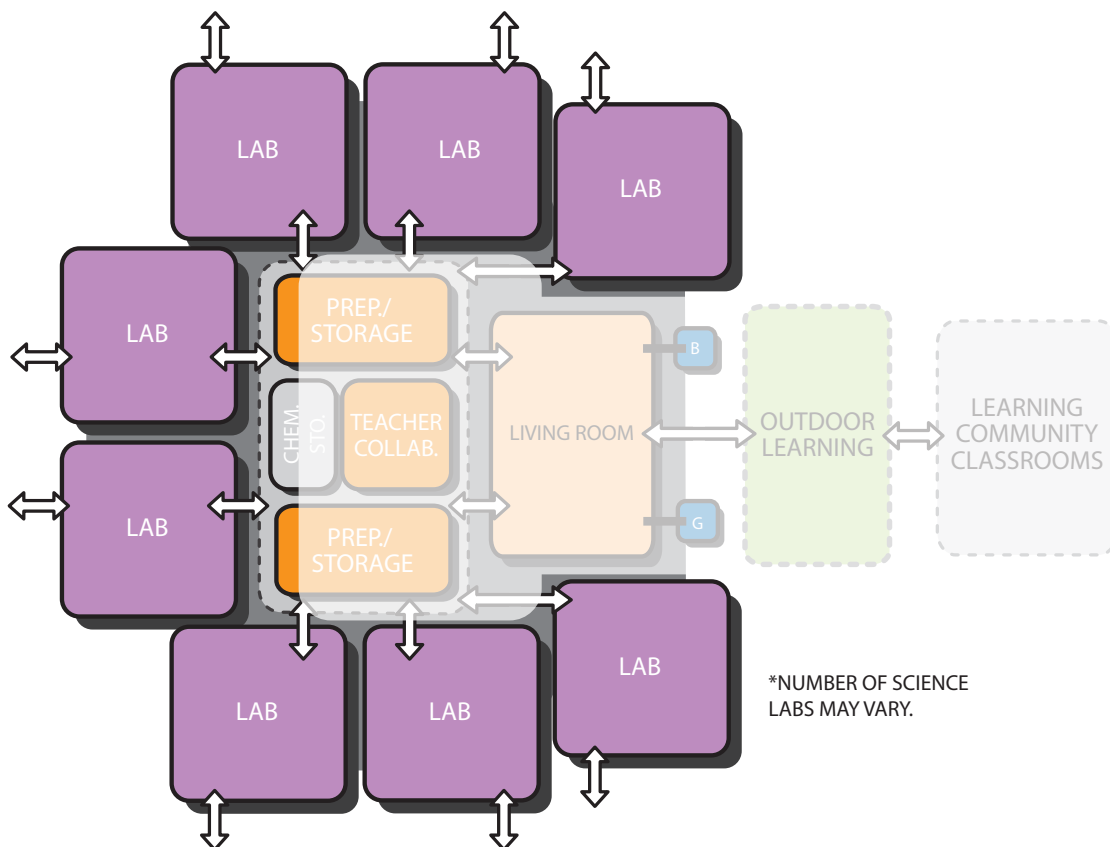
OCCUPANTS: 1 instructor, 29 students

### ACTIVITIES AND USES

Activities include classroom instruction, laboratory investigations, individual and small-group projects, physics experiments, utilization of technology, including computers, calculator-based labs, and graphing calculators.

### SUPPORT SPACES

- Prep/storage: 900 sf
- Chemical storage: 200 sf
- Next to other physics room
- Some experiments are done outside so easy and non-disturbing access to an outside field
- Should be located near other science laboratories



## SPECIAL CONSIDERATIONS

- Ceiling material: acoustic ceiling tile
- Ceiling height: 9'-0" min.
- Wall material: painted gypsum board
- One wall tackable surface
- Floor material: vinyl composite tile
- Adjacent classrooms accessible through common door
- Acoustics: per ANSI/ASA S12.60-2010/ Part 1 "American National Standard Acoustical Performance Criteria, Design

Requirements and Guidelines for Schools,"

- Part 1: Permanent Schools
- Min. 55 STC ratio between adjacent teach space
- Provide wall space for maps and educational posters
- Safety equipment: fire blanket, first aid kit, fire extinguisher, ABC, sand for metal fires, goggles and goggle sanitizer, eyewash, safety shower, corrosive cabinets (no metal), non-latex gloves

## DOORS / WINDOWS

- Door with view panel
- Energy efficient windows with blinds
- Skylights acceptable
- Large windows to exterior - natural light desirable

## FURNITURE / EQUIPMENT/ MILLWORK

- (1) Mobile instructor demonstration island
- (7.5) Mobile 4-Student workstations / island lab / lecture stations
- (1) 80" TV monitor display, fixed, wall-mounted
- Technology console
- Fume hood - where required

- Air fittings per lab station
- Storage cabinets with glazed doors and locks
- Wall and base cabinets with non-reactive counter surface
- Markerboard: (2) 4' x 12' or marker wall
- Tackboard: (2) 4' x 4'
- Clock
- Flattop work area

## BUILDING SYSTEM REQUIREMENTS

### MECHANICAL

- Independent temperature control of area within flexible range set by district's EMS system
- Room temperature sensor connected to campus EMS
- Fire alarm/suppression as required
- Exhaust capacity for fume hood

### PLUMBING

- Acid resistant sinks with hot and cold water at each station and fume hood - sediment traps at demonstration sink; goose-neck style faucets
- Emergency eye wash / shower
- High-powered water for chemistry / physics setup

### ELECTRICAL / LIGHTING

- Outlets for general room and workstation use
- Clean, segregated power distribution with surge suppression
- Lighting: per IES Lighting Handbook guidelines
- Ability to dim room in response to video projection
- Plenty of outlets for vacuum pumps, hotplates, other equip.

### TECHNOLOGY

- Telephone / intercom handset, VoIP
- Intercom speaker with outlet
- Hardwired video outlet to permit taping of in-room activities, transmitting to on-campus locations, and receiving video transmission from on-campus distribution system at TV monitor display
- Local area network connectivity for instructor workstation and student workstations
- Wireless access capable for most computer communications/applications

ROOM TYPE:

## BIOLOGY & CHEMISTRY LAB

SIZE: 1800 sf

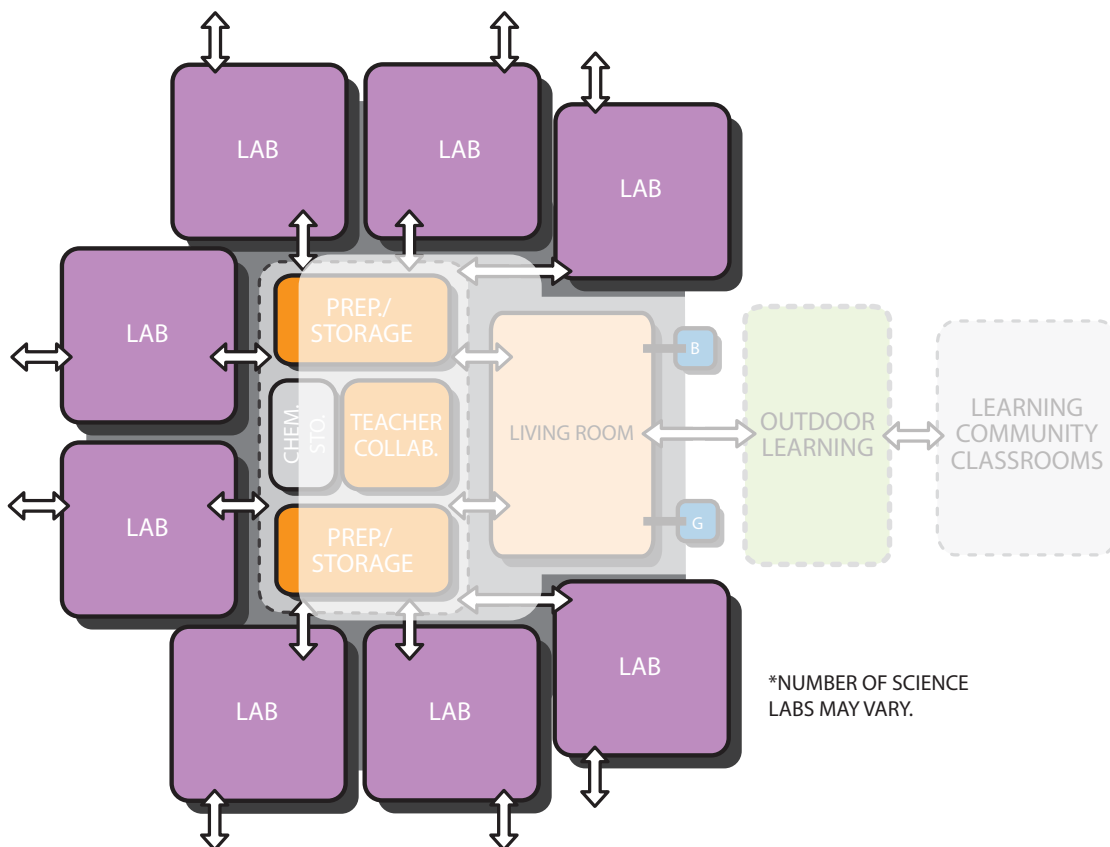
OCCUPANTS: 1 instructor, 29 students

### ACTIVITIES AND USES

Activities include classroom instruction, laboratory investigations, individual and small-group projects, and observation of organisms, utilization of technology and probeware.

### SUPPORT SPACES

- Prep/storage: 900 sf
- Chemical storage: 200 sf
- Should be located near other science laboratories



## SPECIAL CONSIDERATIONS

- Ceiling material: acoustic ceiling tile
- Ceiling height: 9'-0" min.
- Wall material: painted gypsum board
- One wall tackable surface
- Floor material: vinyl composite tile
- Adjacent classrooms accessible through common door
- Acoustics: per ANSI/ASA S12.60-2010/ Part 1 "American National Standard Acoustical Performance Criteria, Design Requirements and Guidelines for Schools,"
  - Part 1: Permanent Schools
- Min. 55 STC ratio between adjacent teach space
- Safety equipment: fire blanket, first aid kit, fire extinguisher, ABC, sand for metal fires, goggles and goggle sanitizer, eyewash, safety shower, corrosive cabinets (no metal), non-latex gloves
- (9) peninsulas preferred; if less perimeter, layout preferred with wider counters
- Provide location to post grades and hang a calendar
- Wall space to hang educational posters

## DOORS / WINDOWS

- Door with view panel
- Energy efficient windows with blinds
- Skylights acceptable
- Large windows to exterior - natural light desirable

## FURNITURE / EQUIPMENT/ MILLWORK

- (1) Mobile instructor demonstration island
- (7.5) Mobile 4-Student workstations / island lab / lecture stations
- (1) 80" TV monitor display, fixed, wall-mounted
- Technology console
- Storage cabinets with glazed doors and locks
- Wall and base cabinets with non-reactive counter surface
- Sliding Markerboard: (2) 4' x 12' or marker wall
- Tackboard: (2) 4' x 4'
- Clock
- Flattop work area

## BUILDING SYSTEM REQUIREMENTS

### MECHANICAL

- Independent temperature control of area within flexible range set by district's EMS system
- Room temperature sensor connected to campus EMS
- Fire alarm/suppression as required

### PLUMBING

- (6) Acid resistant sinks (18"x16") with hot and cold water at each station - sediment traps at demonstration sink; goose-neck style faucets
- Emergency eye wash / shower
- High-powered water for chemistry / physics setup

### ELECTRICAL / LIGHTING

- Outlets for general room and workstation use
- Clean, segregated power distribution with surge suppression
- Lighting: per IES Lighting Handbook guidelines
- Ability to dim room in response to video projection

### TECHNOLOGY

- Telephone / intercom handset, VoIP
- Intercom speaker with outlet
- Hardwired video outlet to permit taping of in-room activities, transmitting to on-campus locations, and receiving video transmission from on-campus distribution system at TV monitor display
- Local area network connectivity for instructor workstation and student workstations
- Wireless access capable for most computer communications/applications

ROOM TYPE:

## TEACHER COLLABORATION

SIZE: 400 sf

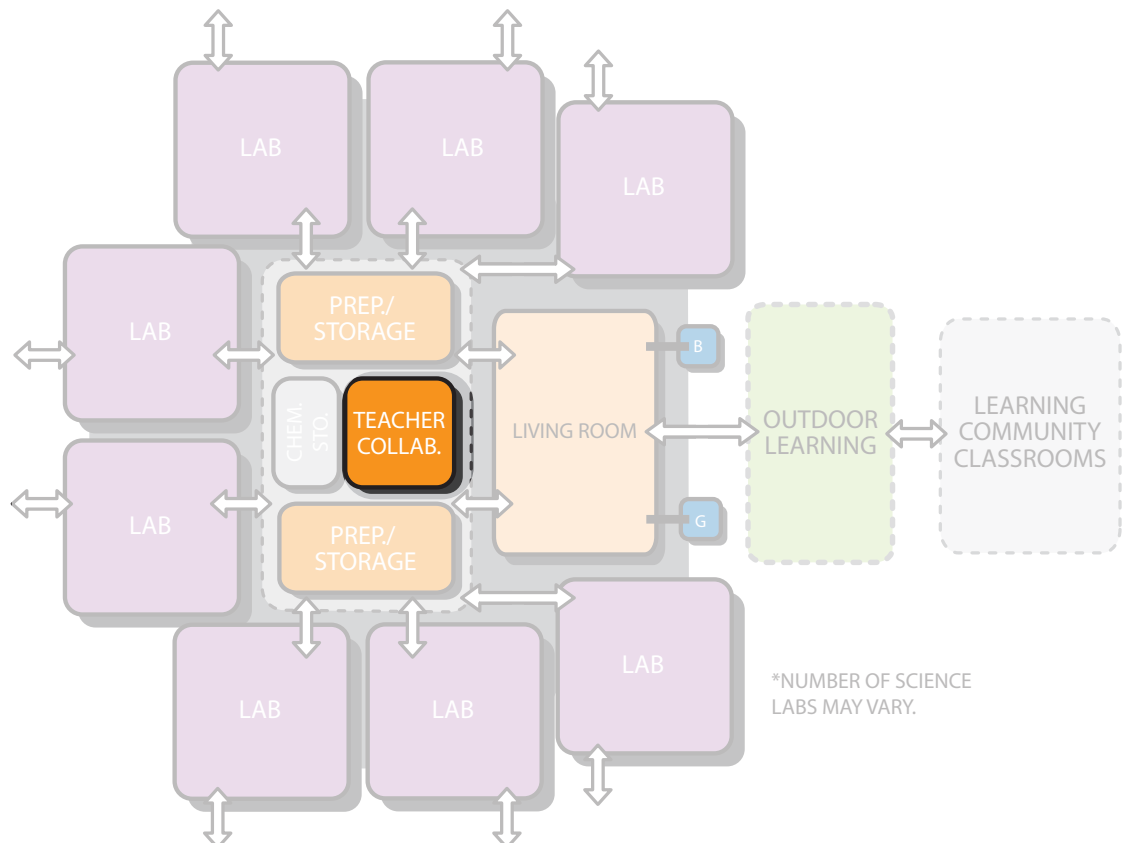
OCCUPANTS: Varies

### ACTIVITIES AND USES

Office space to develop curricula, prepare instructional materials, confer with colleagues, assist students and conduct activities related to the business of science teaching and learning. Activities also include informal and formal conferences and consultations with colleagues and staff; design and processing of course handouts, and examinations; assessing critiquing and evaluating student projects, papers, and examinations; researching corresponding, and developing classroom materials.

### SUPPORT SPACES

- None



## SPECIAL CONSIDERATIONS

- Ceiling material: acoustic ceiling tile
- Ceiling height: 9'-0" min.
- Wall material: painted gypsum board
- One wall tackable surface
- Floor material: vinyl composite tile
- Acoustics: per ANSI/ASA S12.60-2010/ Part 1 "American National Standard Acoustical Performance Criteria, Design Requirements and Guidelines for Schools,"
  - Part 1: Permanent Schools

## DOORS / WINDOWS

- Door with view panel
- Energy efficient windows with blinds
- Skylights acceptable
- Large windows to exterior - natural light desirable

## FURNITURE / EQUIPMENT/ MILLWORK

- (2) Instructor workstations
- Work / conference table (seated height) with 8 chairs
- Base cabinets with work area, counter top sink, and upper storage
- Wardrobe storage unit (with lock)
- Full height storage unit (with lock)
- Copier
- Laptop cart for secure storage
- Refrigerator
- Storage cabinets (with locks)
- Markerboard: (1) 4' x 12' or marker wall
- Tackboard: (2) 4' x 4'
- Clock

## BUILDING SYSTEM REQUIREMENTS

### MECHANICAL

- Independent temperature control of area within flexible range set by district's EMS system
- Room temperature sensor connected to campus EMS
- Fire alarm/suppression as required

### PLUMBING

- Sink with hot and cold water

### ELECTRICAL / LIGHTING

- Outlets for general room and workstation use
- Clean, segregated power distribution with surge suppression
- Additional as required for production equipment
- Lighting: per IES Lighting Handbook guidelines
- Ability to dim room in response to video projection

### TECHNOLOGY

- Telephone / intercom handset, VoIP
- Intercom speaker with outlet
- Hardwired video outlet to permit taping of in-room activities, transmitting to on-campus locations, and receiving video transmission from on-campus distribution system
- Local area network connectivity
- Wireless access capable for most computer communications/applications