MIDDLE SCHOOL SCIENCE DEMONSTRATION CLASSROOM

New Construction

I. PROGRAM PHILOSOPHY

Science is an integral part of our life and times, and therefore an integral part of the school curriculum. Science instruction must include both the content and process of science. Due to the high interest level of the subject matter, and its relevance to practical application, both reading and math take on a new interest to the student.

II. PROGRAM GOALS

To provide opportunities for students to acquire:

a. The knowledge and skills basic to the development of an understanding of himself, his environment, and the forces operating therein.
b. The knowledge of, and skills in using, scientific procedures for discovering new knowledge to serve as a basis for further study of any of the sciences.
c. A realization that the basic principles of science are the processes through which new knowledge is gained.

III. PROGRAM ACTIVITIES

Grade 6	Introduction to the Earth-Space Sciences
Grade 7	Introduction to the Life Sciences
Grade 8	Introduction to the Physical Sciences

At each level, many laboratory activities are included in the curriculum. These activities necessitate student work space with gas, water, and electricity. Also, lecture and written desk work, as well as whiteboard work are common practice. AV materials and the overhead projector are used in each room.

IV. ORGANIZATIONAL NOMENCLATURE

Teacher - Student Ratio:	1:30	
Student Capacity per Period:	270	
Total Number of Teachers:	9	
Total Number of Aides:	0	(If applicable)
Grade Levels or Age Levels for Which Program is intended:	6, 7 and 8	
Hours per Day Space Will Be Used:	6.4	

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V. INNOVATIONS, EXPERIMENTAL IDEAS, OTHER PLANNED USES

It is possible that these facilities will be used at night, on weekends or in the summer for enrichment, field trips, or summer camps. Security of the building should be considered to prevent the loss of expensive laboratory equipment, yet flexibility for the instructors to gain access during non-school hours should be maintained.

Conduits (and/or cabling) should connect each area of the science department for communication of audio/visual or computer data. For example, a distributed computer network might include a file server located in the preparation room with workstations in each science classroom to be served. Likewise, a school-wide media distribution system, or departmental distribution system might send programming to T.V. monitors in science classrooms. The goal is to provide maximum flexibility in design to allow for future expansion of high-tech instructional aids.

VI. SQUARE FOOTAGE CHANGES EXPLANATION THAT VARIES FROM APPROVED FACILITIES LIST

None

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VIII. PROGRAM FURNITURE AND EQUIPMENT REQUEST FORM
* To be shown on drawing
# To be purchased and installed by contractor

Space or Area	Number of Items	Description of Furniture/Equipment Needed
Grades 6, 7 and 8 Science Demonstration Classrooms		
	*15 per room	Tables, 24" x 54" top x 30" high, Kemresin Top, 4" x 4" hardwood legs
	30 per room	Standard Student Chairs
	2 per room	Wastebasket
	1 per room	Four-Drawer File Cabinet
	3 per room	Aquaria (Life Science Only)
	1 per room	Chart Set
	*#1 per room	Overhead Projector & Screen 60" x 80" NTSC Format
Prep/Storage	30	Student Microscopes
	15	Triple Beam Balances
	*#1	Refrigerator, 19 Cubic Feet with Icemaker
	1	Human Torso
	1	Incubator
	1	Vacuum Pump
	15	Power Supply
	3	Anatomical Models
	4	Cages
	*#1	Four-Burner Electric Stove, with Oven & Vent Hood
Each Room	*#4 per room	Paper Towel Dispensers
	*#4 per room	Powdered Soap Dispensers

IX. SPECIAL CONSIDERATIONS

- Heating/Cooling/Ventilation

  In each storage/prep room, provide the following:

  One fume hood vented to the outside.

  One 30 gallon flammable storage cabinet (such as Justrite M-9044), vented to the outside. Exhaust hood over stove/oven vented to the outside.

  Instructor switchable exhaust system, capable of running during times when air conditioning is not in operation.

  In each science classroom, provide the following:

  The nature of science activities, special attention must be given to providing a heating/air conditioning system capable of greater than normal flow rate, fresh air return, humidity control, removal of fumes and odors, and with reduced noise.

  Instructor-switchable forced air exhaust system capable of exhausting the entire room in three (3) minutes.

IX. SPECIAL CONSIDERATIONS (continued)

- Heating/Cooling/Ventilation (continued)

  Special consideration should be given to placement of the exhaust vents, and with provision of makeup air to maximize the effectiveness of the exhaust system.

- Windows

  Prefer all rooms to have window above the wall shelves (windows to be from ceiling down to about 70" from floor). For safety reasons, students should not be able to look outside while performing lab work.

- Plumbing

  Each room must have master shut-off valve for water, easily accessible by the instructor. Sinks in classrooms to have cold water only; prep/storage rooms to have hot and cold water supply (may be demand-heater under counter). Utilize "vandal-resistant" fixtures in all student-occupied spaces.

  Provide emergency eye wash station in each room.

  Each Student Occupied Classroom (9 rooms):
  4 deep Modified Epoxy Resin utility sinks with vandal-resistant fixtures per room, located at the ends or corners of perimeter counters. One Modified Epoxy Resin sink in each demonstration table.

  Prep-Storage Rooms:
  1 large Modified Epoxy Resin sink with swiveling faucets for preparing solutions and washing glassware (Similar to Kewaunee KTF-575). One sink in fume hood. Provide water to icemaker.

  Teacher Office Area: 1 large sink in counter.

  Floor drain for eye wash station.

- Electrical

  Provide master cut-off switch for electricity in each room.

  Each Science Room (9 rooms):
  10 duplex GFI outlets per room, spaced along perimeter counters. One duplex outlet in each demonstration table. Three duplex wall outlets in the front of each room and 1 outlet for U.V. Sanitizer.

  Prep-Storage Room:
  6 duplex wall outlets, spaced around room. 2 duplex outlets spaced along work counter. One duplex outlet for each instructor in teacher planning area. One 220V outlet for stove top/oven. Provide 3 duplex outlets for computer workstation area.

  Teacher Office: 1 duplex outlet at each teacher desk and 3 duplex outlets for computer workstation.

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IX. SPECIAL CONSIDERATIONS (continued)

- Gas and Air

  Gas in each demonstration room must have master shut-off valve.

  Each Science Room (9 rooms): 16 gas outlets per room, spaced around perimeter counter. One double gas outlet in each demonstration desk.

  Prep-Storage Rooms: 1 double gas outlet near each sink. 1 single gas outlet in fume hood.

- Safety

  1. Provide fire extinguisher and wall-mounted fire blanket in each room.
  2. Provide shut off valves for gas, water and electricity in each room.
  3. Provide vented flammable storage cabinet in each prep/storage room.
  4. Provide wall-mounted U.V. Goggle Sanitizing Cabinet in each classroom.
  5. Provide acid storage cabinet in Physical Science Prep-Storage Room (8th grade area).
  6. Storage Room shelves to be wood (no metal parts), sturdy, provided with lips on front.

- Built-in Cabinetry

  A. Built-in work counter

  Each classroom to have a 5' demonstration desk with instructor's table

  Each classroom to have a minimum of 64 lineal feet of perimeter counter, spaced along three walls. Counters to be 36" high, 30" deep with backsplash and Modified Epoxy Resin tops. Below counters are single-door, deep drawer arrangement; all provided with locks (such as Kewaunee 1K162 and 1K219 alternating). At 5' height, along one wall above counter in each room, provide two Kemshield adjustable shelves (such as Kewaunee KM-0038-AD, AS-4812-WS). At 5' height, along one wall above counter in each room, provide 4 wall mounted storage cases, 46.75" long, 30" high, 12" deep (such as Kewaunee 1K614 and 1K642 alternating). Over counter on remaining wall in each room, provide a picture moulding near ceiling, and tackboard. Provide picture moulding near ceiling along wall in front of classroom. Over each of the utility sinks, provide a pegboard drying rack (such as Kewaunee KD901).

  B. Built-in cabinets/shelving

  Each lab room to have 1 storage unit, 2' deep x 4' wide x 7' high, solid front, lockable doors.

  7th Grade Prep room should have a 20-compartment microscope storage cabinet, 35" wide, 84" high, and 16" deep. (Similar to Kewaunee 1K966). Along one wall, provide 36" tall counter with Modified Epoxy Resin top, with sinks and utilities described previously; below counter to have large double-door and single upper-drawer base cabinets. As extensively as possible along the remaining walls, provide sturdy, wooden adjustable shelving, 16" deep, and six

IX. SPECIAL CONSIDERATIONS (continued)

B. Built-in cabinets/shelving (continued)

levels, with backs. Approximately one-third of shelves must be provided with one-half to 1" lips on front edges. No metal guides, shelf carriers or brackets will be permitted (chemical corrosion). Provide one acid resistant cabinet (such as Kewaunee 1A398), which may be included in the base cabinet along the "sink wall".

6th Grade and 8th Grade Prep room: Same as described above, except no microscope cabinet.

C. Built-in Instructional Aids

All Science Demonstration rooms (9):
20 lineal feet whiteboard minimum each room; as extensively as possible across the front.
6 lineal feet of tackboard near front of each room.
Extensive use of tackboard along one wall over counter in each room.
1 pull-down 60” wide projection screen each room.

Prep-Storage-Teacher Office:
4 x 6' each of whiteboard and tackboard.

D. Other Built-ins

In the Teacher Office area, provide built-in workstations/desks for nine teachers. This should include a "desktop" with several drawers, two adjustable 12-16" shelves above, and each provided with electrical outlets as described previously. Also provide one 12' workstation suitable for several computers/printers, provided with six electrical outlets.

- Other Considerations

Each of the six science labs should access a Prep-Storage-Teacher Planning Area.

Teacher planning for science teachers may be combined with other subject areas to enhance the house concept.