Some Guidelines and Points on How Metric Should be Taught

This document was prepared by 22 teachers grades K-8 from 15 different school districts in South Carolina during a graduate course (SMED 769 “Mathematics for Science Teachers”) offered by the University of South Carolina. To show their commitment to this document, the teachers have fully endorsed these guidelines, provided their signatures with it at that time:

1. CURRICULUM
   Metrics will be taught in all subject areas.

2. TEXTBOOKS
   Textbooks for all subject areas will use metrics. Mathematics textbooks contain customary references to other measuring systems.

3. TEACHERS
   There will be a mandatory in-service training for SI-Metric literacy.
   Teachers must pass a standard test developed by teachers for the State of South Carolina in the SI Metric System. The teacher must pass the test with 80% proficiency and the test can be repeated.

4. MATERIALS
   The following materials should be provided:
   Metric rulers in cm and mm (Use rulers that have only metric scale units on them)
   Metric units
   Metric tapes (150 cm and 20 m tapes)
   Balance scales and metric mass sets (1 balances scale per 5 students)
   Graduated cylinders 10, 25, 50, 100, 250, 500, and 1 000 mL
   Graduated beakers 50, 100, 250, 500, and 1 000 mL
   Celsius Thermometers
   Metric measuring cups and spoons
   Platform metric spring scale 1 per glass
   Metric model of cm³, dm³, and m³, models for display
   Metric games (AIMS and GEMS versions made by South Carolina Teachers grades K-8)
   Supplementary written materials for class activities
   Metric wall charts
   Simple metric tables of units

5. PREFIXES
   Teach prefixes nano, micro, milli, centi, deci, deka, hecto, kilo, mega, and giga (Do not use very large or very small prefixes in the early grades.)

6. KEY UNITS TO EMPHASIS
   Length: mm, cm, dm, m, and km
   Mass: mg, g, kg, and Mg or t
   Volume: m³, dm³, cm³,
   Capacity (fluid measure): L and mL
   Area: are and hectare
   Temperature: Celsius
   Velocity: m/s and km/h

7. INSTRUCTION
   Teach metrics in every grade all year long.

8. PARENTAL INVOLVEMENT
   Involve parents in the metric effort through an explanation of why we teach metric, training, and designing homework assignments that include the parents.
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9. TIME
   Use the 24 hour clock when teaching time

10. CLASSROOM
    Metric charts, signs, height chart in cm and displays should be set up.

11. CONVERSIONS
    Teach metric by itself. Make no English-unit comparison. Teach no conversion factors. Teach how to coexist and cope with standard units and metric units rather than teaching conversions from one system to the other.

12. RELATIONSHIPS
    Stress the relationships between the monetary system (a decimal system) and metric system. Stress the relationship between the meter, liter and gram.

13. COOPERATIVE LEARNING
    Use cooperative learning techniques for the teaching of metric. Teach by actively involving students.

14. HISTORY, RATIONALE AND JUSTIFICATION TO METRIC
    Teach a brief history – Why metric began, where it began, and where metric is being used. Teach the rational “Why teach metric”: Refer to the Trade Act of 1988 and the executive order President Bush signed in July of 1991. Note the number of products that you use in your daily life that are metric.

15. METRIC AUTHORITY AT YOUR SCHOOL
    Select one member of the faculty to be the metric authority of the school. Each school district should have at least one CERTIFIED METRIC SPECIALIST.