

nearer her size, and their efforts played no small part in the results secured. We soon found that she was deathly afraid of arithmetic, so much so that it was thought best to give her a special teacher. We petted her; we provided one situation after another to give her self-confidence and assurance. As she began to overcome her fear we found that she was decidedly artistic. She had a sweet singing voice, but was loth to use it if doing so brought attention her way. She could draw and paint rather better than any of the others, but it was a red-letter day with the practise teachers when she finally was induced to offer suggestions about a class project and to accept responsibility for a definite unit. She became especially interested in history and eagerly tried to read the entire list of references offered the class. However, the problem was much the same here; and it was almost Christmas before she would contribute freely to the class discussions. Once she did start to improve, she lifted her head like a thirsty flower after a rain. Very capable and of a decidedly artistic temperament, she had been all but overwhelmed by the series of discouraging situations at home and at school.

She had lost all faith in herself, and all joy in work. Being an artist, this meant that she had lost practically all ability to work. By spring she was an entirely different child, happy in her work, eagerly anxious to tackle the next job, and confident that she could carry it out—apparently a normal child save for a look of having suffered that no thirteen-year-old girl should have. She had broken all school records in the number of library books read; she had served as chairman of the cover committee for the final number of the class magazine; she had become a leader in the dramatics, and showed a good deal of style in her composition work. The literary committee for the class magazine had given first rank to a poem of hers. But most important of all in its far-reaching effect upon her feeling attitude, she had caught the class pace in arithmetic. Her pride and happiness in this was only equalled by the feeling of proprietorship that the practise teachers felt for her. Then in the summer time she moved again and we lost her.

But we have faith to believe that throughout her entire life she will be a stronger, happier woman because it was our privilege for

one year to so set the stage for her activities that she was a happy interested worker in a school society. Believing this, we feel that developing personality in school children is an opportunity for any student of child psychology.

KATHERINE M. ANTHONY

II

THE USE OF THE TEXTBOOK IN MATHEMATICS

It is a fact, patent to all teachers of arithmetic, that most textbooks on that subject are not teachable; that is, it is not possible to teach any given textbook from cover to cover without making certain omissions. As long as textbooks are made to sell, this must be so, because they must be made to cover all sorts of courses, whether they fit or not.

The textbook, however good it may be, is usually a misfit as far as any given course is concerned. It behooves the individual teacher, therefore, to so cut and trim the textbook, that it will be at least a near-fit. But how is this to be done? The following account of an attempt to answer this question is given in the hope that it may be helpful to others.

DETERMINING THE TIME FOR EACH TOPIC

The topics to be covered in the first term of the given grade having been previously determined, the first thing done was to make a tentative determination of the proportional amount of time to be given to each topic. Then a calculation was made as follows:

18 weeks, one term
 2 weeks off for examinations, 16 weeks
 16 weeks, 5 lessons a week, 80 lessons
 10 lessons off for review leaves 70 lessons.

A leeway of 10 lessons to cover unforeseen interruptions or necessary repetitions is essential. This leaves 60 lessons, to be apportioned to the various topics. After this, the page assignments for each of the sixty lessons were written down, often rewritten and modified several times before an apparently satisfactory set of sixty lessons which would cover the term's work was obtained.

ILLUSTRATIVE EXERCISES FOR EACH ASSIGNMENT

Following this, definite exercises or problems were chosen to accompany each page assignment. These were carefully selected to illustrate every point brought out in the lesson assignment, so that in an attempt to prepare the lesson the pupil should solve, or at least attempt to solve, every problem.

MAKING USE OF THE CARD SYSTEM

It then became the duty of the teacher to see that each of the assigned exercises was worked on the board and explained to the class. This was accomplished in an efficient way with little loss of time by means of a previously prepared set of cards, each containing one of the problems assigned for the day. One of these cards was given to each pupil who was sent to the board. The books were closed. The cards contained no answers; so the pupil was left alone with his problem.

While the pupils at the board were at work, those at their seats were given drill work, similar to the assigned work, and kept profitably occupied. At the expiration of perhaps half of the class period, or as soon as those at the board had finished, the words "seats and papers" were a signal for all seat-work to be passed immediately to the teacher's desk and for those at the board to be seated. The remainder of the period was used for explanation of board work and for development of new topics.

The schedule of lessons was kept and used year after year, with such alterations as seemed necessary; and the cards for each lesson were kept in separate packages numbered to correspond to the lesson assignment.

SCHEDULING THE WORK OF THE TERM

It was customary to post the schedule for the term on the bulletin board and to dictate it to the class at the beginning of the term, so that each pupil would have a copy to paste in his book. This served the double purpose of saving the teacher's time in assigning a new lesson each day, and of enabling a pupil who was absent for any reason to know exactly where his lesson would be on the day

on which he returned. The old excuse, "I didn't know where the lesson was," was banished. The rule was "always the next lesson on the schedule unless I say 'repeat this lesson.'" The review lessons were assigned with a definite end in view.

THE THREE IDEAS IN THE SYSTEM

This system was thoroughly tried out for a number of years. It is a combination of three ideas: (1) a schedule of lessons originally intended to insure that all sections of a large class should cover the same ground and be prepared to take the same tests or examinations; (2) a card system of exercises and problems to remove the temptation of the methods of the book and the answer as far from the pupil as possible; and (3) a review schedule intended to present to the class a bird's-eye view of the whole term's work at each lesson.

The idea of the schedule of lessons was gotten from Lieut. Wm. R. King, U. S. N., principal of the Baltimore Polytechnic Institute, who has used it there for many years. The idea of the card system arose from a chance conversation with a student from the Georgia Institute of Technology, who said "Down there they give you a card with a problem on it and send you to the board. If you get the answer, you get 10; if you don't, you get 0." The first cards used were old minstrel show tickets which were printed only on one side. But when it was shown not only that the use of the cards took the book and the answer away from the pupil when he was at the board, but also that from five to seven minutes, usually lost in getting pupils to the board and problems assigned, was saved on every recitation, plenty of money became available for cards. The card system may be very easily and quickly made with the assistance of some of the pupils, by having them either write the problems on the cards, or paste on the cards problems clipped from two old books. The idea of the successive review lessons, each covering the term's work, was first suggested by Mr. Wm. H. Wilhelm, head of the department of mathematics at the Baltimore Polytechnic Institute, and this was by no means the least valuable feature of the system.

A TERM'S ASSIGNMENTS FOR SEVENTH GRADE
WORK

Below is appended a lesson assignment for the first term's work in arithmetic for the seventh grade, based on Smith's *Modern Advanced Arithmetic*.

SEVENTH GRADE LESSON ASSIGNMENT IN
ARITHMETIC

Smith's *Modern Advanced Arithmetic*

(When no exercises are assigned all the exercises on the given page are to be worked.)

REVIEW OF ESSENTIALS

- Lesson 1. p. 58—Ex. 6-7, p. 59—Ex. 4-5, p. 60—Ex. 5, p. 65—Ex. 10-11.
- " 2. p. 68—Ex. 10, 17, 24, 29, p. 69—Ex. 8, p. 73—Ex. 8, p. 74—Ex. 4; 6; p. 76—Ex. 40, 43.
- " 3. p. 84—Ex. 10-14, p. 86—Ex. 10-14, 35, 37, 39.
- " 4. pp. 88-89.
- " 5. p. 140—Ex. 13-24, p. 142—Ex. 1-3.
- " 6. p. 146—Ex. 34-38, 52, 53, 54.
- " 7. p. 154—Ex. 11, 17, 34, 47, 50, 55, 56. p. 155—Ex. 1-3.
- " 8. p. 112.
- " 9. p. 95.
- " 10. p. 237.
- " 11. p. 241.
- " 12. p. 243.
- " 13. p. 244—Ex. 4, 5, p. 245—Ex. 24, 26, p. 246—Ex. 42, 43, p. 247—Ex. 75, 76, p. 249—Ex. 95, 97, 98.
- " 14. p. 244—Ex. 3, 6, p. 245—Ex. 22, 27, p. 246—Ex. 44, p. 247—Ex. 70, 71, 72, p. 248—Ex. 85, 88.

DISCOUNT AND BILLS

- Lesson 15. pp. 251-252.
- " 16. p. 251—Ex. 10-13, p. 252—Ex. 35-42.
- " 17. pp. 253-254—Ex. 1-5.
- " 18. p. 254—Ex. 6-9.
- " 19. p. 256.
- " 20. p. 257.
- " 21. p. 259.

PROFIT AND LOSS—COMMISSION

- Lesson 22. pp. 260-262.
- " 23. Lessons 19-22.
- " 24. p. 263.
- " 25. p. 264.
- " 26. p. 265.
- " 27. p. 266.

INTEREST AND APPLICATION

- Lesson 28. pp. 267-268.
- " 29. p. 269.
- " 30. p. 271—Ex. 1-6.
- " 31. p. 271—Ex. 7-12.
- " 32. p. 273—Ex. 45-50.
- " 33. p. 279.
- " 34. p. 280—Ex. 1-4.
- " 35. p. 280—Ex. 5-9.
- " 36. p. 281—Ex. 1-4.
- " 37. p. 281—Ex. 4-7.
- " 38. p. 282—Ex. 1-5.
- " 39. p. 282—Ex. 6-9.
- " 40. Lessons 34-39.

RATIO AND PROPORTION

- Lesson 41. pp. 283-284.
- " 42. p. 285.
- " 43. pp. 286-287—Ex. 1-8.
- " 44. p. 287—Ex. 16-24.
- " 45. p. 289.
- " 46. pp. 290-291—Ex. 1-9.
- " 47. p. 292.

PRACTICAL PROBLEMS

- Lesson 48. p. 295.
- " 49. p. 296.
- " 50. p. 298—Ex. 1-7.
- " 51. p. 302.
- " 52. p. 299—Ex. 1-7.
- " 53. p. 303—Ex. 1-5.
- " 54. p. 303—Ex. 4-7.
- " 55. p. 300—Ex. 1-6.
- " 56. p. 301—Ex. 1-7.
- " 57. p. 306.
- " 58. p. 307.
- " 59. p. 308.

REVIEW LESSONS

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p. 271-1.	p. 271-2.	p. 271-3.	p. 271-4.
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p. 290-1.	p. 290-2.	p. 290-3.	p. 290-4.
V.	VI.	VII.	VIII.
p. 247-73.	p. 248-84.	p. 249-95.	p. 249-101.
p. 257-3.	p. 254-3.	p. 259-1.	p. 252-38.
p. 263-1.	p. 263-30.	p. 262-10.	p. 261-5.
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p. 266-4.	p. 271-6.	p. 266-3.	p. 266-2.
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HENRY A. CONVERSE