NOTE.—[Pupils should perform, or, at least, assist in, the experiments and measurements. They should write accurate descriptions of the experiments and illustrate them by drawings. They are then to be required to account for the observed results by processes of reasoning based on the experiments and previously established facts and principles. These arguments should be clearly expressed and written out.

Each number in the foregoing course will, with some exceptions, occupy the time allotted for the subject during one week. Suitable experiments are given in Gage & Fessenden's High School Physics, which is authorized for the teacher's use only. More effective or cheaper experiments may sometimes be devised by the teacher or pupils, and they will be able to make a considerable part of the apparatus. The instruments which it will be necessary to purchase are not costly. Prices may be learned by sending for a manufacturer's catalogue. E. S. Ritchie & Sons, Brookline, Mass., and Eimer & Amend, 205-211 Third Avenue, New York, issue good catalogues.

Chute's Practical Physics (D. C. Heath & Co., Boston); Elementary Lessons in Electricity and Magnetism, by Sylvanus Thompson; Elementary Lessons in Heat, Light and Sound, by D. E. Jones (MacMillan & Co.), will be found to be very useful aids to the teacher. "The Conservation of Energy," by Balfour Stewart; "Heat as a Mode of Motion," and "Six Lectures on Light," by Tyndall, are excellent reading for the teacher, and will greatly assist him in making the school work interesting.]

EXAMINATION QUESTIONS.

The Question papers for the examinations of 1894 will not be published, as formerly, in the Annual Education Report But a complete printed set of any of these papers will be sent, on application, to any teacher or candidate.

NUMBER OF TEACHING DAYS IN CURRENT TERM, CHRISTMAS VACATION.

The total number of teaching days in the current term is 92 for country districts, and 83 for cities and incorporated towns. Teachers who kept their schools in operation on labor day will be allowed to substitute any other of the teaching days as a holiday in place of labor day.

The current term will end on Friday, December 21st, and the next term will begin on Monday, January 7th, 1895.

J. R. INCH, Chief Sup't of Education.

Education Office, November 1 1894.

QUESTION DEPARTMENT.

L. M. C.—1. Solve
$$ax + by + c = 0$$
, $a^{1}x + b^{1}y + c^{1} = 0$.

$$du = -by = c \qquad (1)$$

Dividing (1)
$$x = -\frac{by+c}{c}$$
 (3)

$$x = -\frac{b^{1}y + c^{1}}{a^{1}} \tag{4}$$

Equating (3), (4)
$$\frac{by+c}{c} = \frac{b^1y+c^1}{c^1}$$
 (5)

Multiplying (5)
$$a^{1}by + a^{1}c = ab^{1}y + ac^{1}$$
 (6)
Transposing (6) $a^{1}by - ab^{1}y = ac^{1} - a^{1}c$
 $\therefore y = \frac{ac^{1} - a^{1}c}{a^{1}b - ab^{1}}$ and $x = \frac{bc^{1} - b^{1}c}{a^{1}b - ab^{1}}$

2. Prove that if a+b+c=o, that $a^3+b^3+c^3=3$ abc. a=-b-c. In the last equation substitute -b-cfor a and we have $-(b+c)^3+b^3+c^3=-3$ bc (b+c) $-b^3-3$ $b^2c-3bc^2-c^3+b^3+c^3=-3$ b^2c-3 bc², in which both sides are seen to be equal.

J. S. W.—The diagonals AC, BD of a parallelogram intersect in O, and P is a point within the triangle AOB; prove that the difference of the triangles CPD and APB is equal to the sum of the triangles APC, BPD.

It can be easily shown that the triangles AOB and DOC are equal. But the triangle CPD-triangle APB=(triangle DOC + Fig. DPCOD) - triangle APB=(AOB + Fig. DPCOD) - APB = (AOB - APB) +Fig. DPCOD=Fig. AOBPA + Fig. DPCOD=DPB + APC.

W. S. K.-1. Hamblin Smith's Arithmetic, page 188, Ex. 8. Calculate from January 30th when the first sum becomes due.

Jan.	30,	\$80.75 ×	0	days	-	0000,00
Apr.	3,	$150.00 \times$	63	66	=	9450.00
July	1,	30.80×1	152	"	=	4681.60
Aug.	10,	40.50×1	192	66	-	7776.00
Aug.	25,	60.30 × 2	207	""	=	12422.10

Add these products, divide the sum by the sum of the debts and we get 95 nearly.

95 days from January 30 is May 5.

Time from May 5 to June 2 = 28 days.

Interest on \$362.35 for 28 days, at 6%, = \$1.66.

.:. \$362.35+\$1.66=\$364.01, the balance required.

2. Hamblin's Smith's Arithmetic, page 188, Ex. 10. Bring the various amounts to pence.

We then have 24418 d. due in 26 days from 13 Jan.

34594 d.	66	51	16	"
72946 d.	"	64	··· ·	66
181688 d.	"	120	"	**
29658 d.	"	135	"	68
29658 d.	"	143		**

Find their products and divide their sum 37115190 by the sum of the amounts of the credits in pence 372962 and we get 100 nearly.

3. Hamblin Smith's Arithmetic, page 190, Ex. 3.

On the debtor side the first item becomes due in six months or 184 days from March 1—the next item in 203 days, etc. These days multiplied by their amounts and the sums divided as in Ex. 2 above, gives 269 days from Mar. 1—due Nov. 25 In a similar way on the credit side all the items become due in 238 days from April 1, or on November 25. Therefore both accounts should be settled on that day.