

$$R_j = R_F + B_j (R_M - R_F)$$

$\underbrace{\hspace{10em}}_{\text{mkt price of risk}}$

$$= 4\% + 1.10 (6\%)$$

10.6%

4.7675      FU

1    n

10.6    i

0 pmt

CPT    PV      4.3106

2

182 days

95.60

100

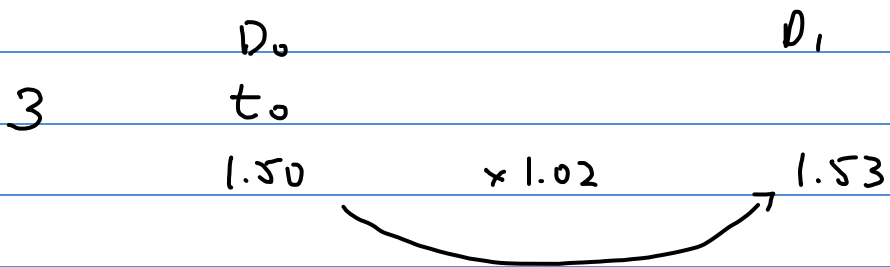
- 95.60 PV

$182/365$  n

100 FV

0 pmt

CPT 1  $\Rightarrow 9.44\%$



Financed from RE

$$K_{re} = \frac{D_1}{P} + g$$
$$= \frac{1.53}{13} + .02$$
$$= .13769$$

net credit period

4

15 ← 45 days → 60

3% discount

97

100

- 97 PV

$\frac{45}{365}$  n

100 FV

0 PMT

CPT 1  $\Rightarrow 28.025$

5

$$K_p = \frac{D}{NP}$$

$$.0825 = \frac{D}{25 - [(5\% \times 25)(1 - 40\%) ]}$$

$$.0825 = \frac{D}{24.25}$$

$$D = .0825 \times 24.25 \\ = 2.000625$$

G                    10 ←     40 days     → 50  
                          2%                                            all  
                          98                                            100

-98    PV

100    FV

$\frac{40}{365}$     n

0    pmt

CPT    i    => 20.24%

7.

	$R_A$	$R_m$
	-6%	10%
	+15%	10%
	+15%	16%
Total	24%	36%
Avg	8%	12%

8

$T_0$	$T_1$	$T_2$	$T_3$	$T_4$	$T_5$	$T_6$
2.20	2.75	3.4375	4.2969	5.371	5.639	5.922

OR

$$2.20 \times 1.25^4 \times 1.05^2$$

↓

$$2.20 \times 2.44 \times 1.1025$$

STO 0      STO 1

$$2.20 \times RCL 0 \times RCL 1 \quad \Rightarrow \quad 5.922$$



9

	$T_0$	$T_1$	$T_2$	$T_3$	$T_4$	
				$D_0$	$D_1$	
	\$ 1.00	1.20	1.44	1.728	1.8144	$\Rightarrow \infty$

18.144 ←

19.872

CF

2<sup>nd</sup> CLR work

$$CF_0 = 0 \downarrow$$

$$C_01 = 1.20 \text{ enter. } \downarrow$$

$$C_02 = 1.44 \text{ enter. } \downarrow$$

$$C_03 = 19.872 \text{ enter.}$$

$$k_{re} = \frac{D_1}{P} + g$$

$$.15 = \frac{1.8144}{P} + .05$$

$$.10 = \frac{1.8144}{P}$$

$$.10P = 1.8144$$

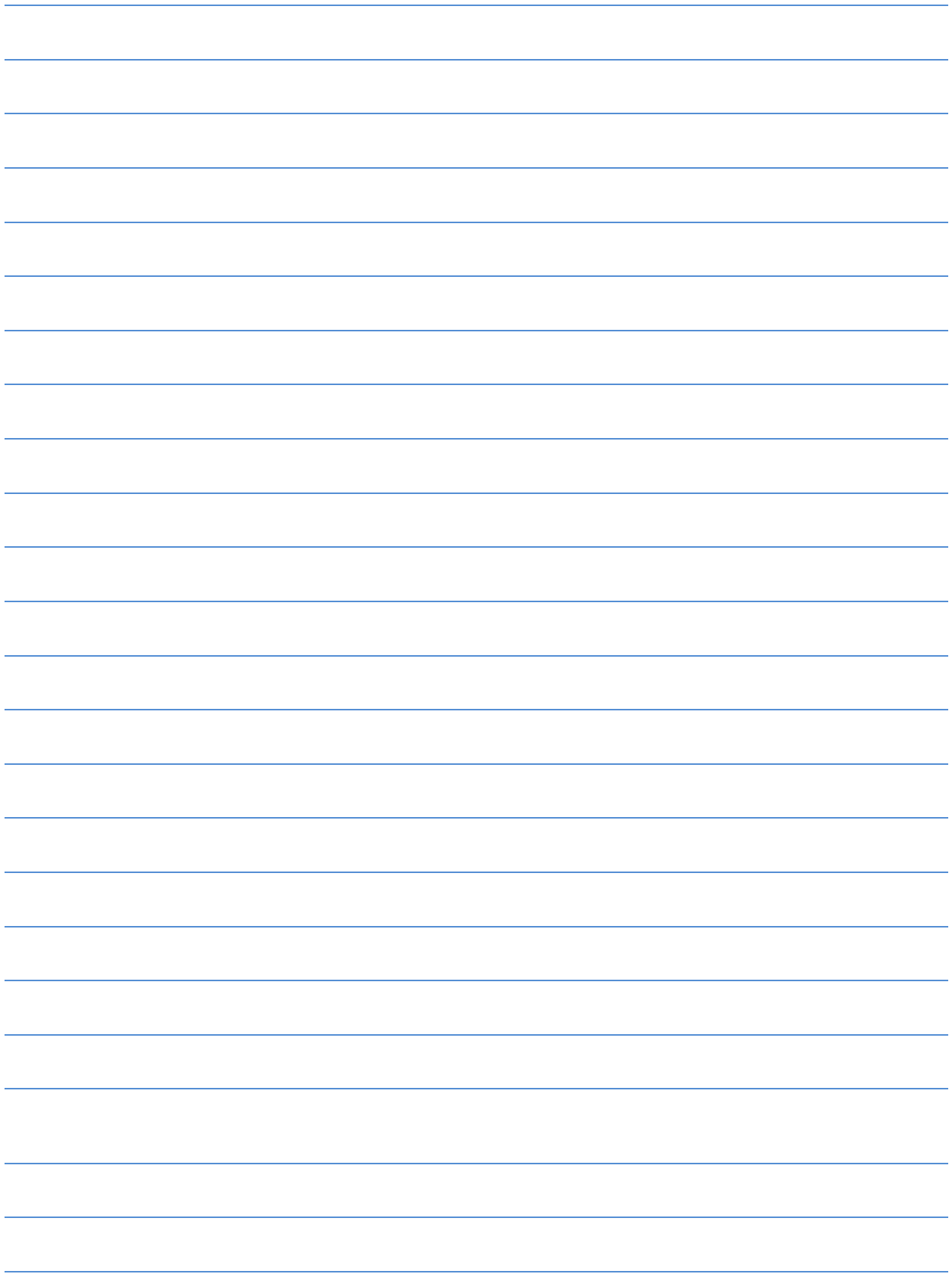
$$P = 18.144$$

NPV

$$I = 15 \text{ enter. } \downarrow$$

CPT

$$NPV = 15.20$$



# Additional In Session 1

	$t_0$		$t_3$
New	(87600)	SU new	16800
old	<u>39200</u>	Opp Cost old	<u>(7200)</u>
"C" Net	(48400)		9600

Yearly cash savings

$$72000 - 48000 = 24000$$

$$\times (1 - 30\%)$$

$$= 16,800$$

Net initial investment (48,400)

PV of CCA tax shield

$$C \times \frac{d}{d+k} \times \frac{2+k}{2(1+k)}$$

$$48,400 \times \frac{.20 \times .30}{.20 + .14} \times \frac{2 + .14}{2(1 + .14)}$$

$$48,400 \times .1765 \times .9386$$

$$\frac{8017}{}$$

Net  $CF_0$

$$(40383)$$

CF, 2<sup>nd</sup> CLR Work

$$CF_0 = -40383 \text{ enter } \downarrow$$

$$C_01 = \text{Cash saved after tax} \\ 16,800 \text{ enter}$$

$$F_01 = 3 \text{ enter}$$

$$NPV \text{ I} = 14 \text{ enter } \downarrow$$

CPT

$$\underline{(1380)}$$

Brought forward

(1380)

PV of SV net of opp cost

9600 FV

3 n CPT PV

6480

14 i

0 pmt

PV of lost CCA tax shield

$$\frac{S_n}{(1+k)^n} \times \frac{d}{d+k}$$

↓  
PV of SV

↓  
RCLD

↓  
6480

× .17647

NPV

(1143)

3957

=

# Additional In Session 2

Jan 2012

	t <sub>0</sub>	t <sub>4</sub>
new	(807500)	96000
old	<u>72600</u>	<u>0</u>
	(734900)	96000

	2012	2013	2014	2015	
SP	4480				
V/C	(3220 - 180)				
CM	1440	1440	1440	1440	
		<u>x 30</u>	<u>x 50</u>	<u>x 50</u>	<u>x 70</u>
↑ output		43200	72000	72000	100800
Yearly savings		<u>175000</u>	<u>175000</u>	<u>175000</u>	<u>175000</u>
		218200	247000	247000	275800
		<u>x (1-40%)</u>	<u>x (1-40%)</u>	<u>x (1-40%)</u>	<u>x (1-40%)</u>
		130920	148200	148200	165480

Net initial investment (734900)

PV of CCA tax shield

$$C \times \frac{d+1}{d+k} \times \frac{2+k}{2(1+k)}$$

$$734900 \times \frac{.25 \times .40}{.25 + .16} \times \frac{2.16}{2.32}$$

$$734900 \times .2439 \times .931 = \underline{166882}$$

(568018)

CF ; 2<sup>nd</sup> CLR Work

CF<sub>0</sub> = - 568018 enter ↓

C<sub>01</sub> = 130920 enter ↓

F<sub>01</sub> = 1 enter ↓

C<sub>02</sub> = 148200 enter ↓

F<sub>02</sub> = 2 enter ↓

C<sub>03</sub> = 165480 enter ↓

F<sub>03</sub> = 1 enter

NPV

1 = 16 enter ↓

CPT NPV (158681)

Before SV

PV of SV

96000 FV ; 4<sub>n</sub> ; 16<sub>i</sub> ; 0<sub>pmt</sub> 53020

PV of Lost CCA tax shield

$$\frac{S_n}{(1+k)^n} \times \frac{d+1}{d+k} \quad (12932)$$

53020 × .2439

NPV (118593)

## EVA 1

	A	P
ROI	$\frac{200,000}{1,000,000}$	$\frac{750,000}{5,000,000}$
	= 20%	= 15%

## RI

Op Inc	200,000	750,000
- Cap Chg		
12% x 1000000	-120,000	
12% x 5,000,000		-600,000
RI	80,000	150,000

## EVA

### WACC Calculation

	Wty	Cost	WACC
Debt	3500 50%	10% (1-40%)	= 3%
Equity	3500 50%	14%	+ 7%
	<u>7,000</u>		<u>10%</u>

# EVA 1 (cont)

	A	P
Op Inc	200,000	750,000
Tax (40%)	- 80,000	- 300,000
Net Income	120,000	450,000

Cap Chg.

WACC (Assets - C/L)

10% (1,000,000 - 750,000)

75,000

10% (5,000,000 - 1,500,000)

350,000

EVA

45,000  
=

100,000  
=

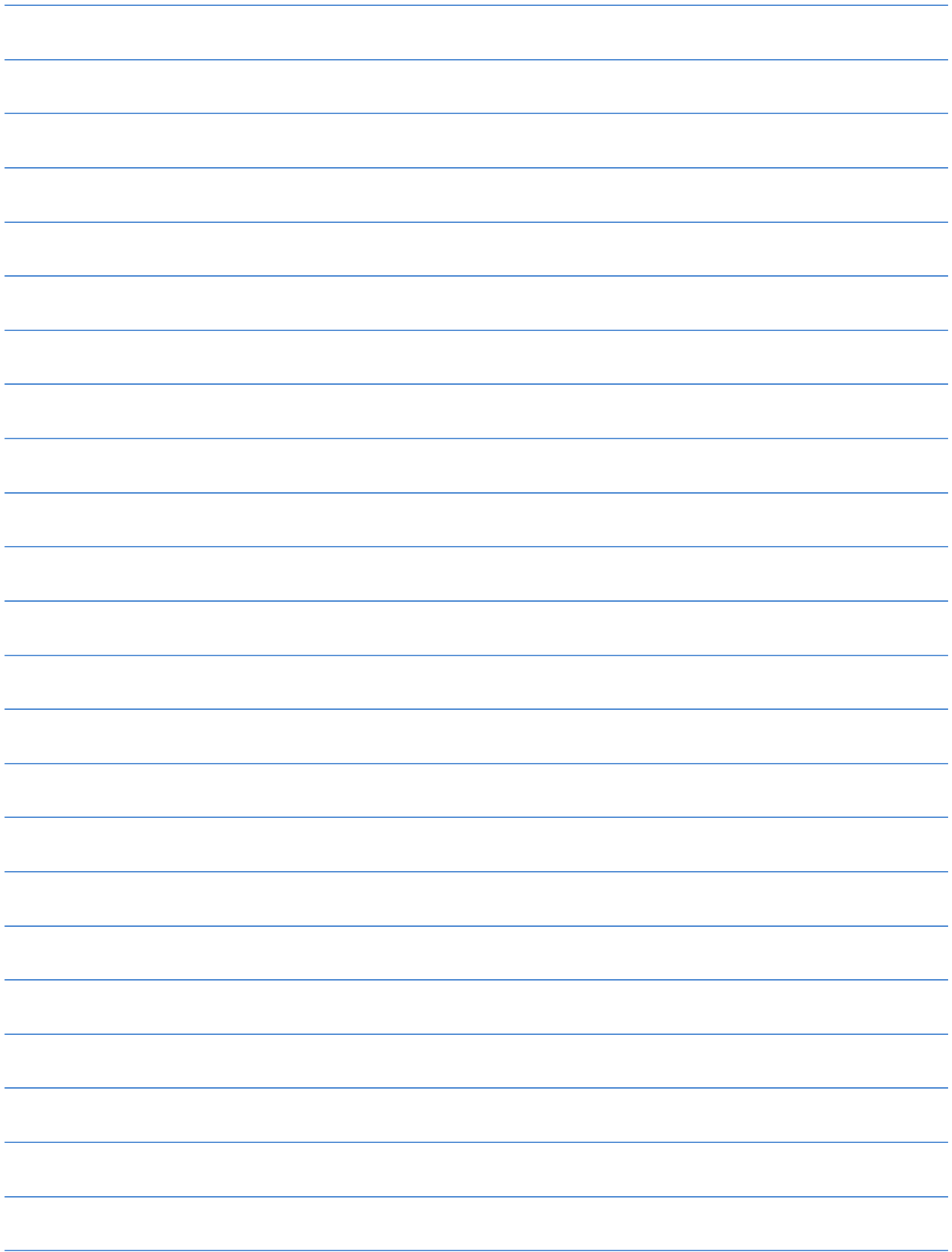


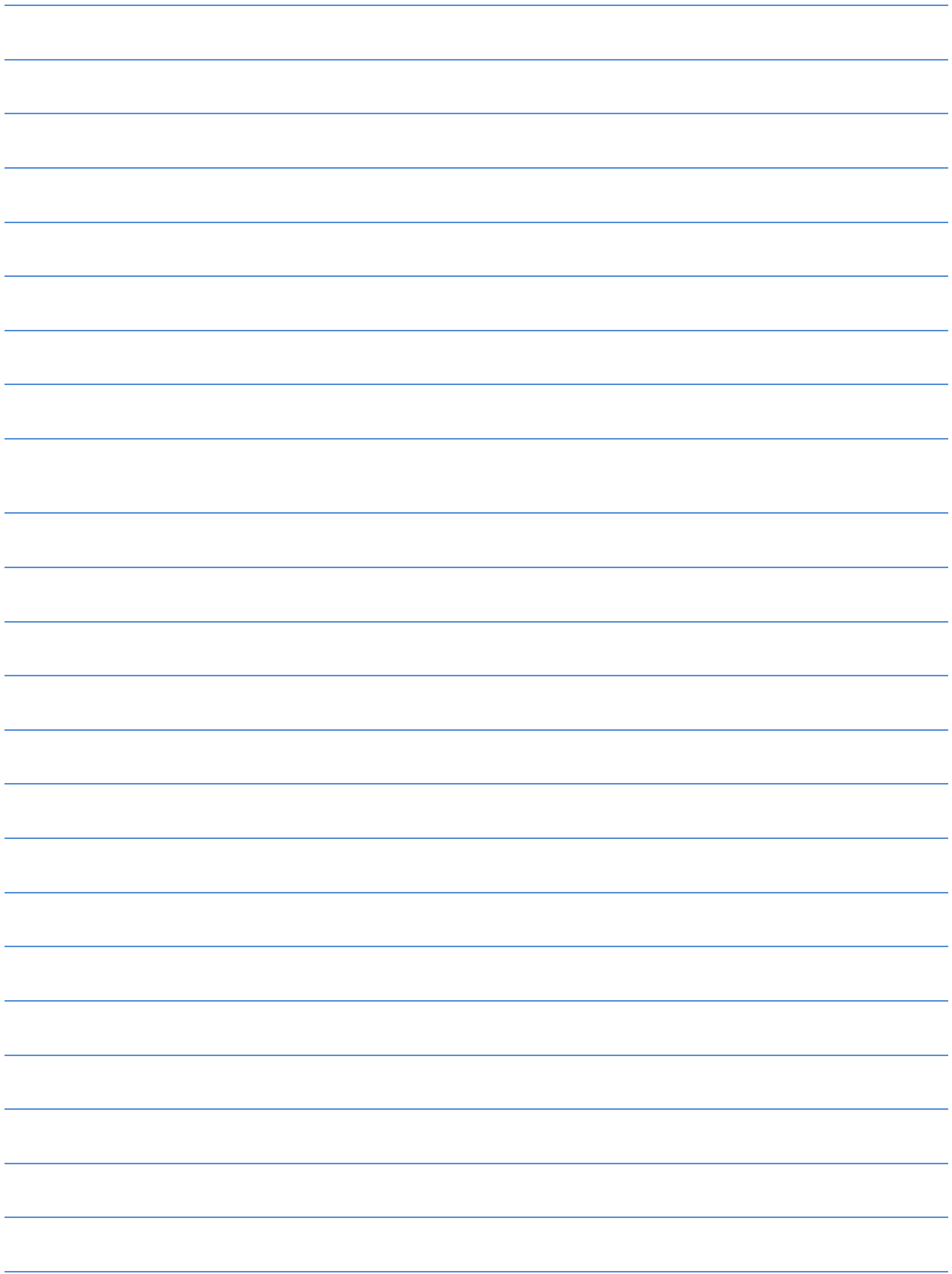
## EVA 2

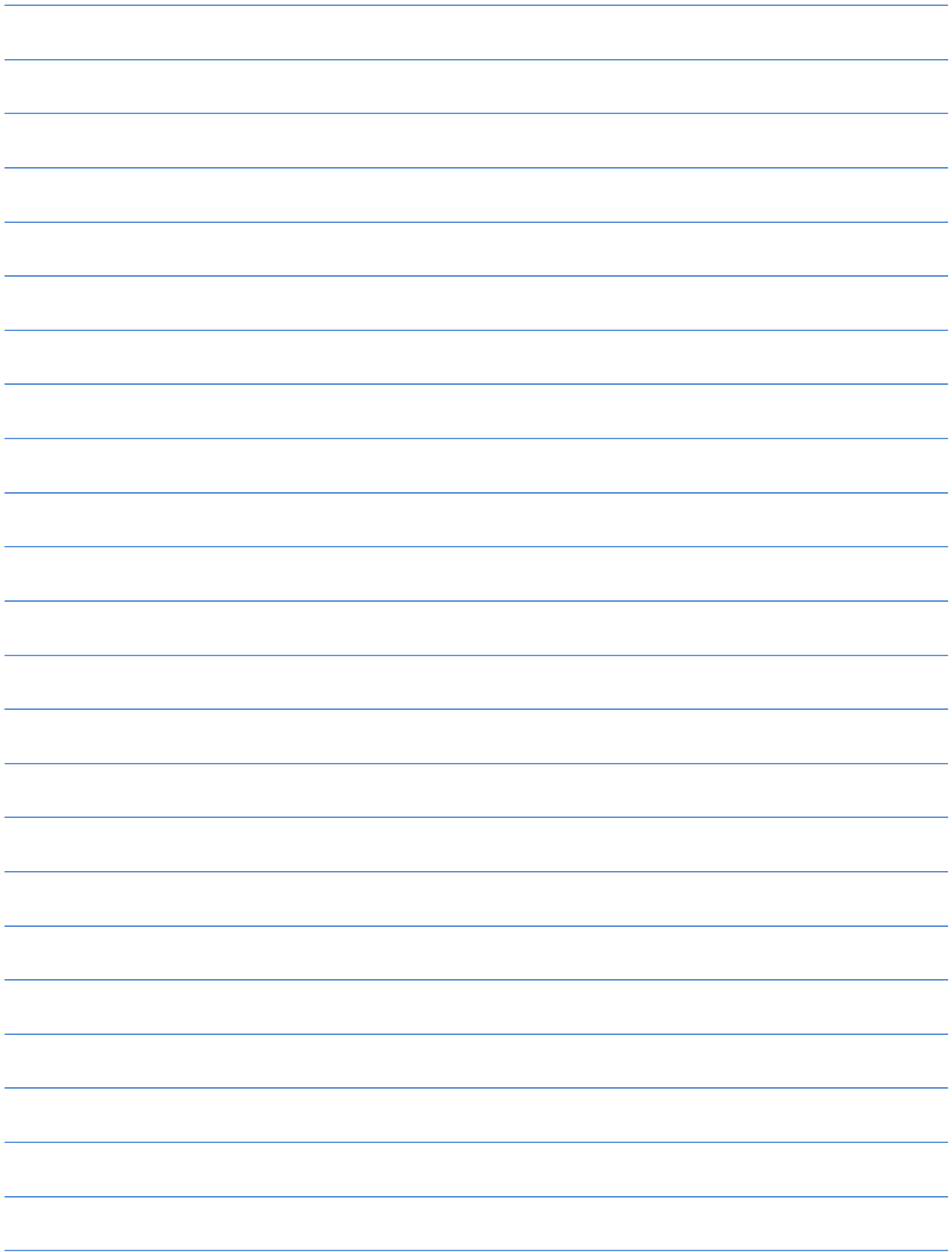
	Truck	Trans
RI	75000	160000
Cap Chg		
12% (650000 - 120000)	63600	
12% (950000 - 200000)	<u>          </u>	<u>90,000</u>
RI	11,400	70,000
	=	=

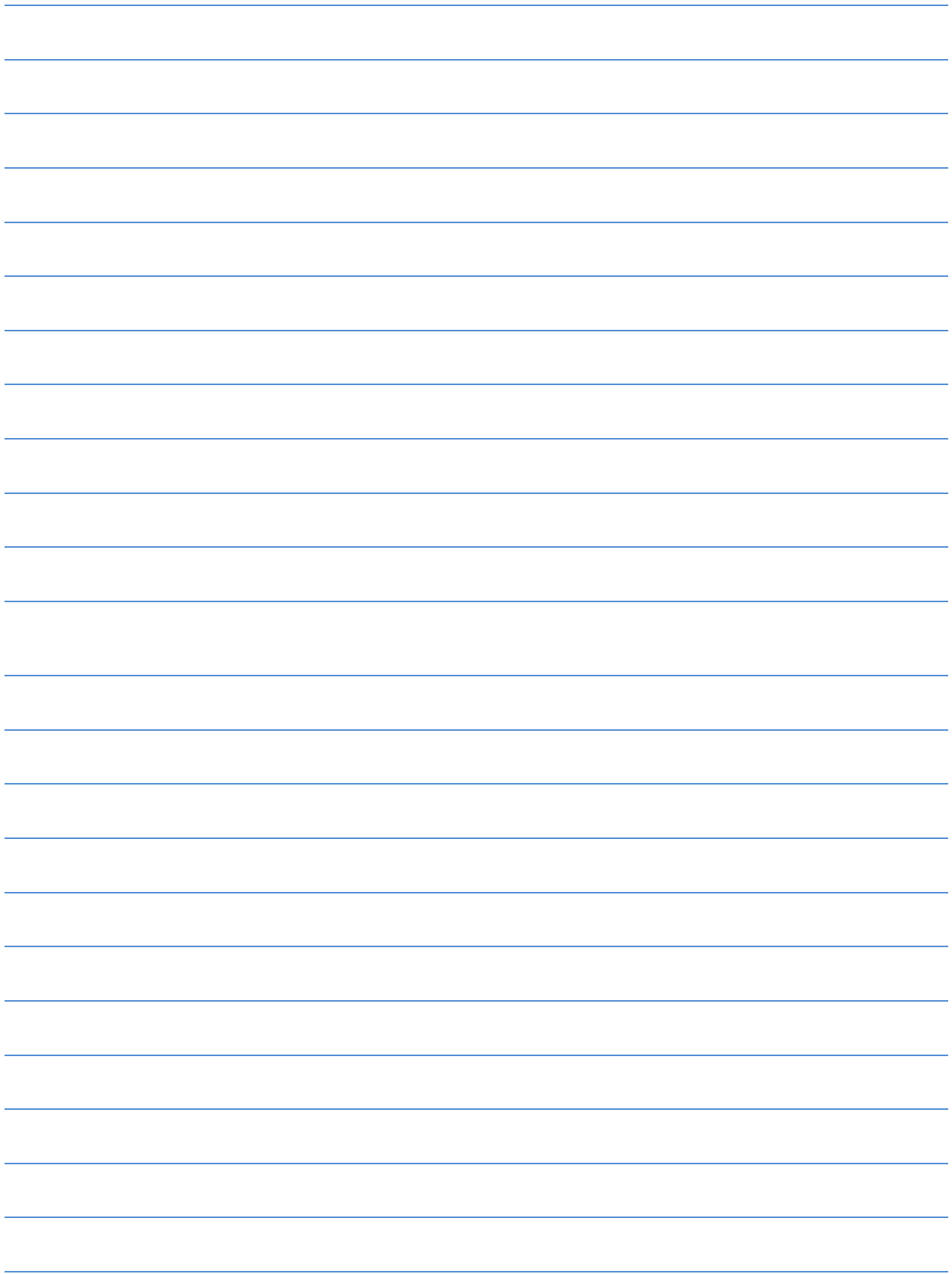
EVA	Wty	Cost	WACC	
Debt	900	60%	10% (1-40%)	3.6%
Equity	<u>600</u> 1500	40%	15%	+ <u>6.0%</u> 9.6%

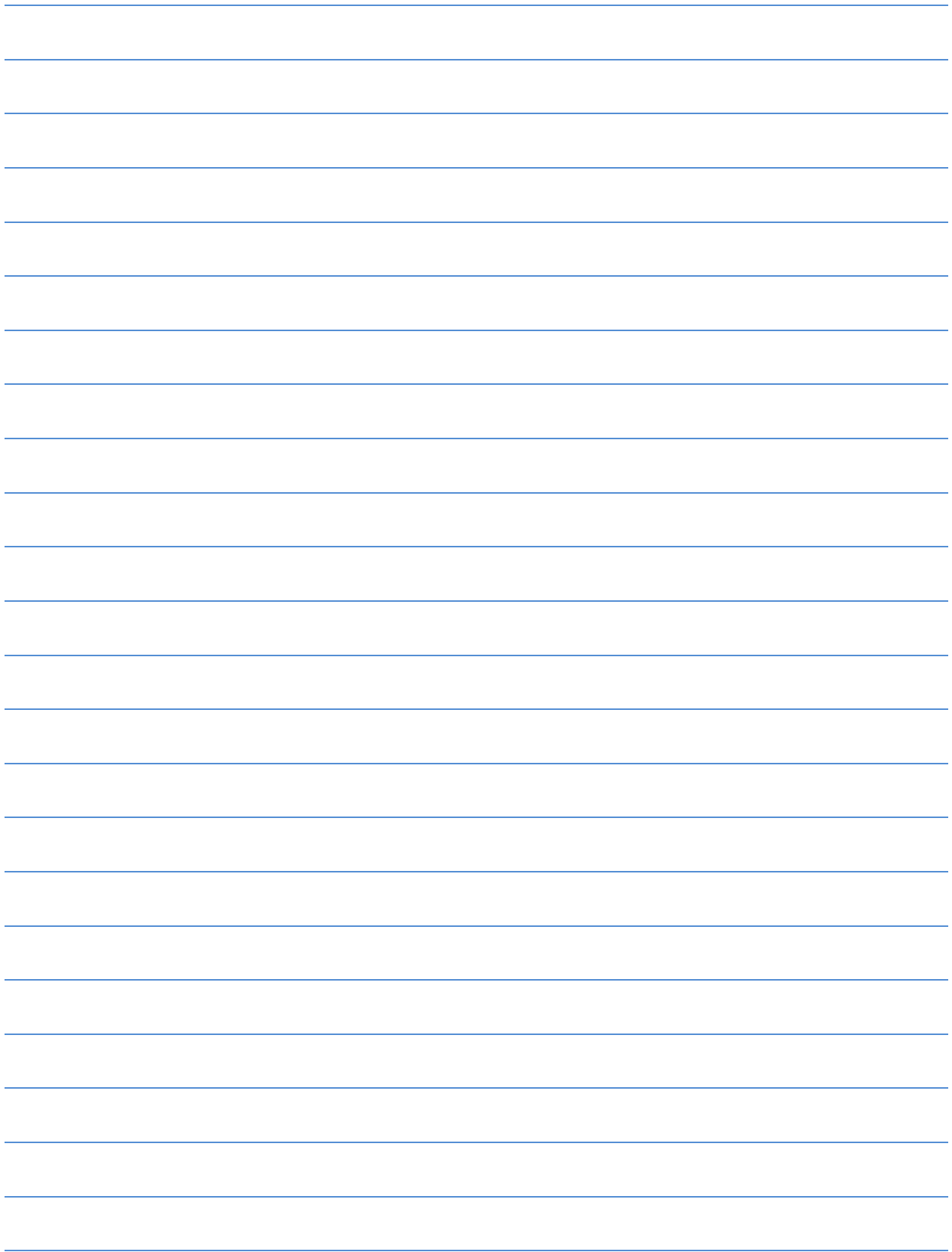
EVA	Truck	Trans
Op Inc	75000	160000
Tax 40%	<u>30,000</u>	<u>- 64000</u>
Net Income	45000	96,000
Cap Chg		
9.6% (650,000 - 120,000)	50880	
9.6% (950,000 - 200,000)	<u>          </u>	<u>72000</u>
EVA	(5880)	24000
	=	=

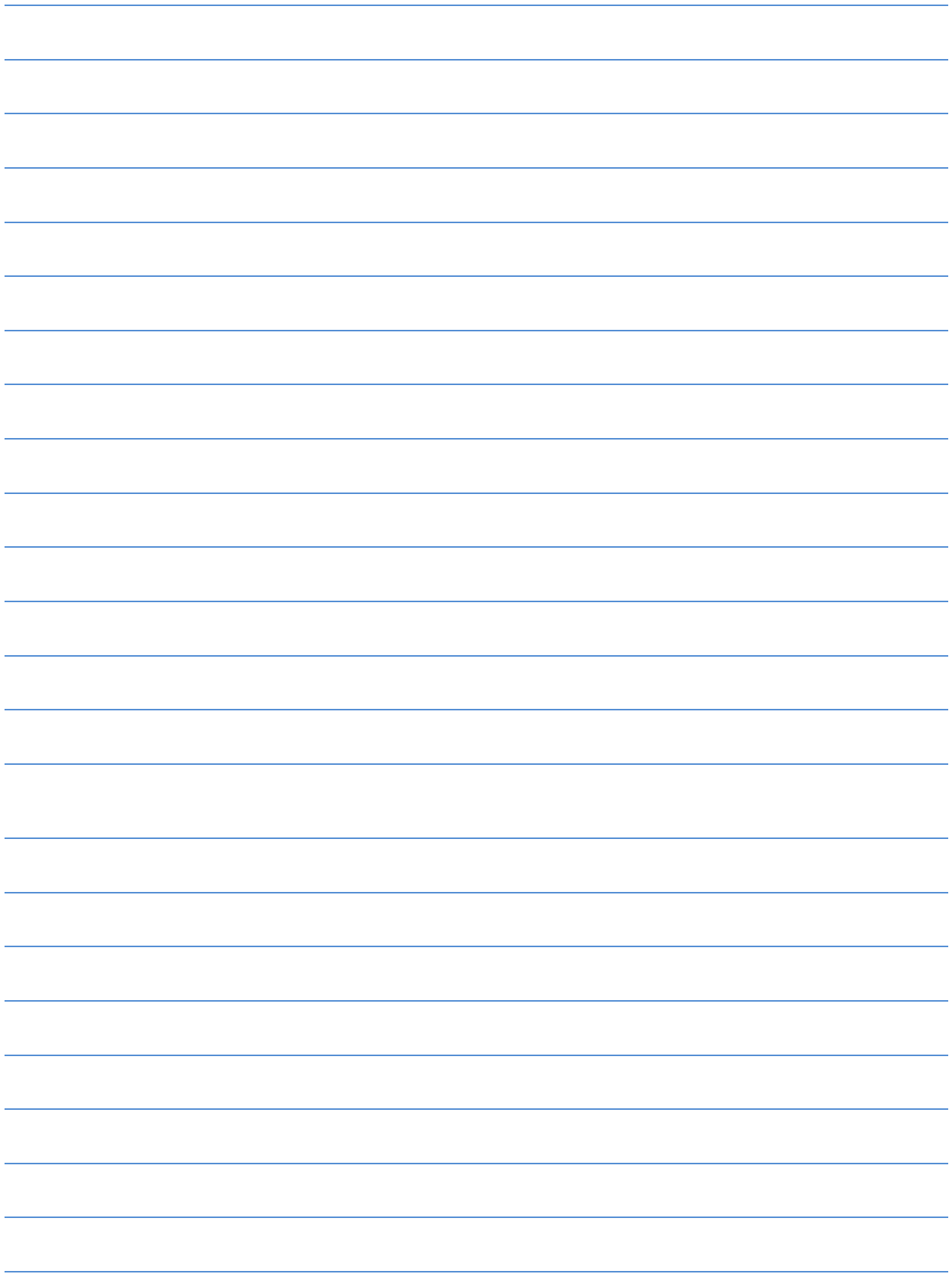


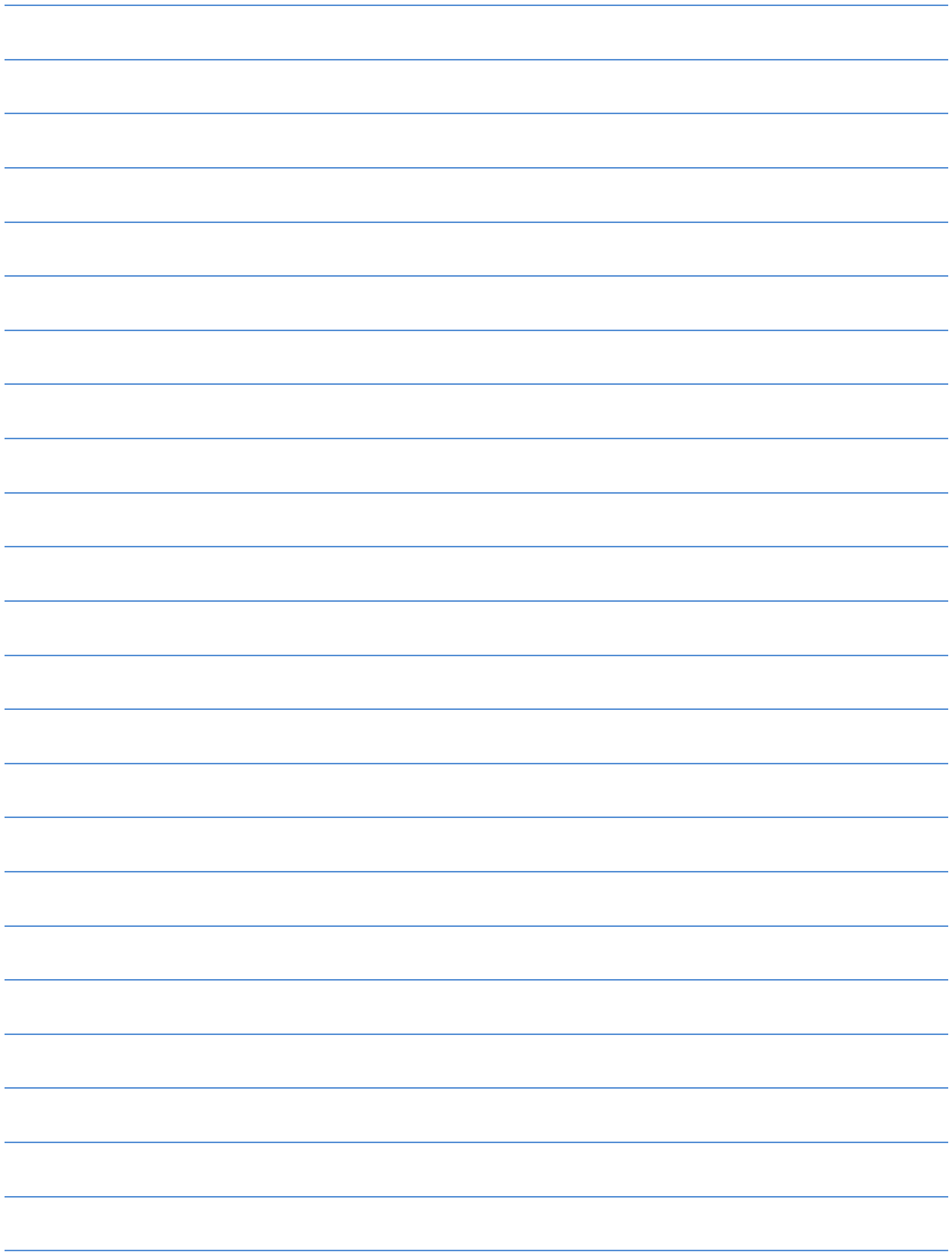




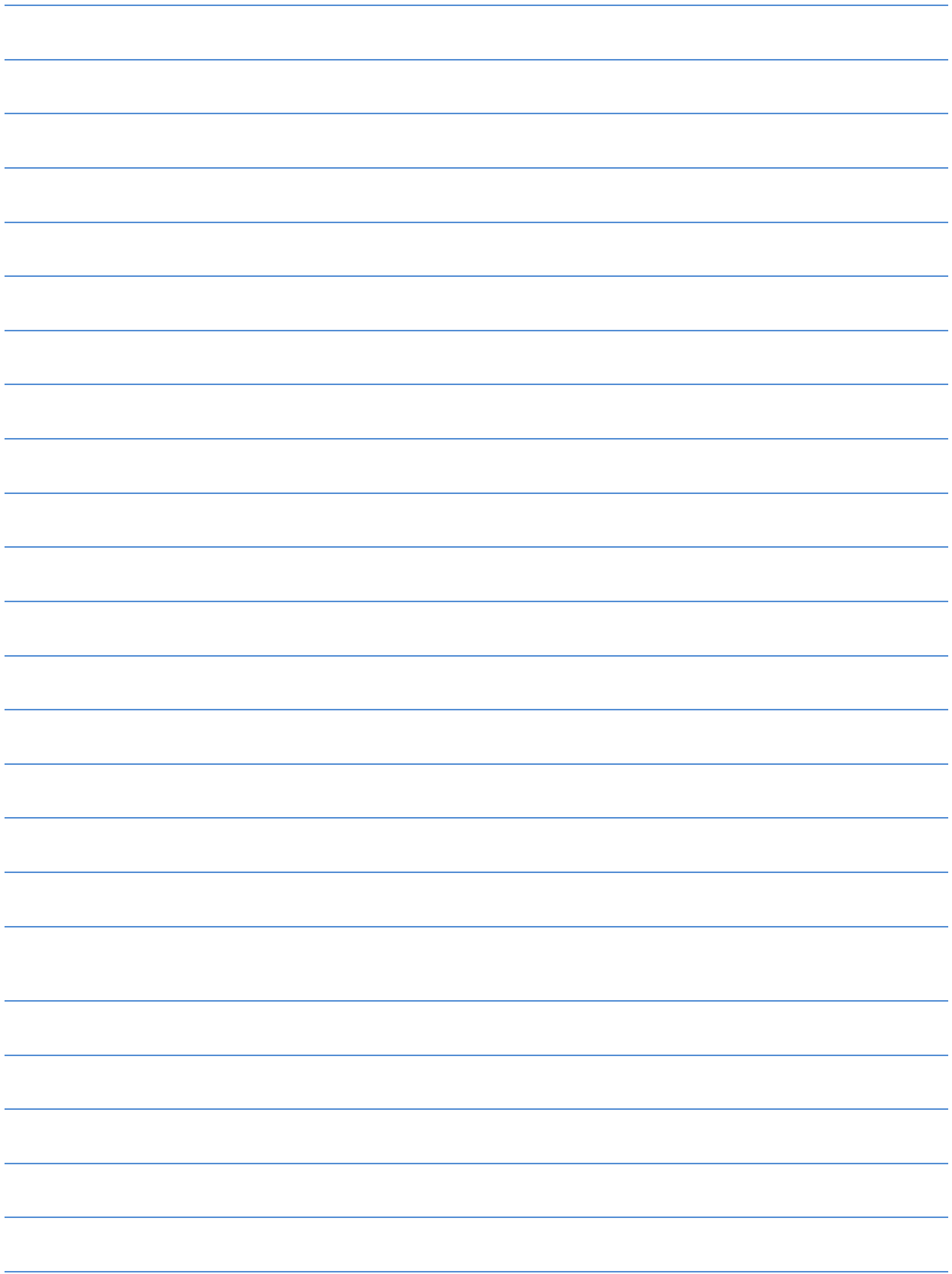


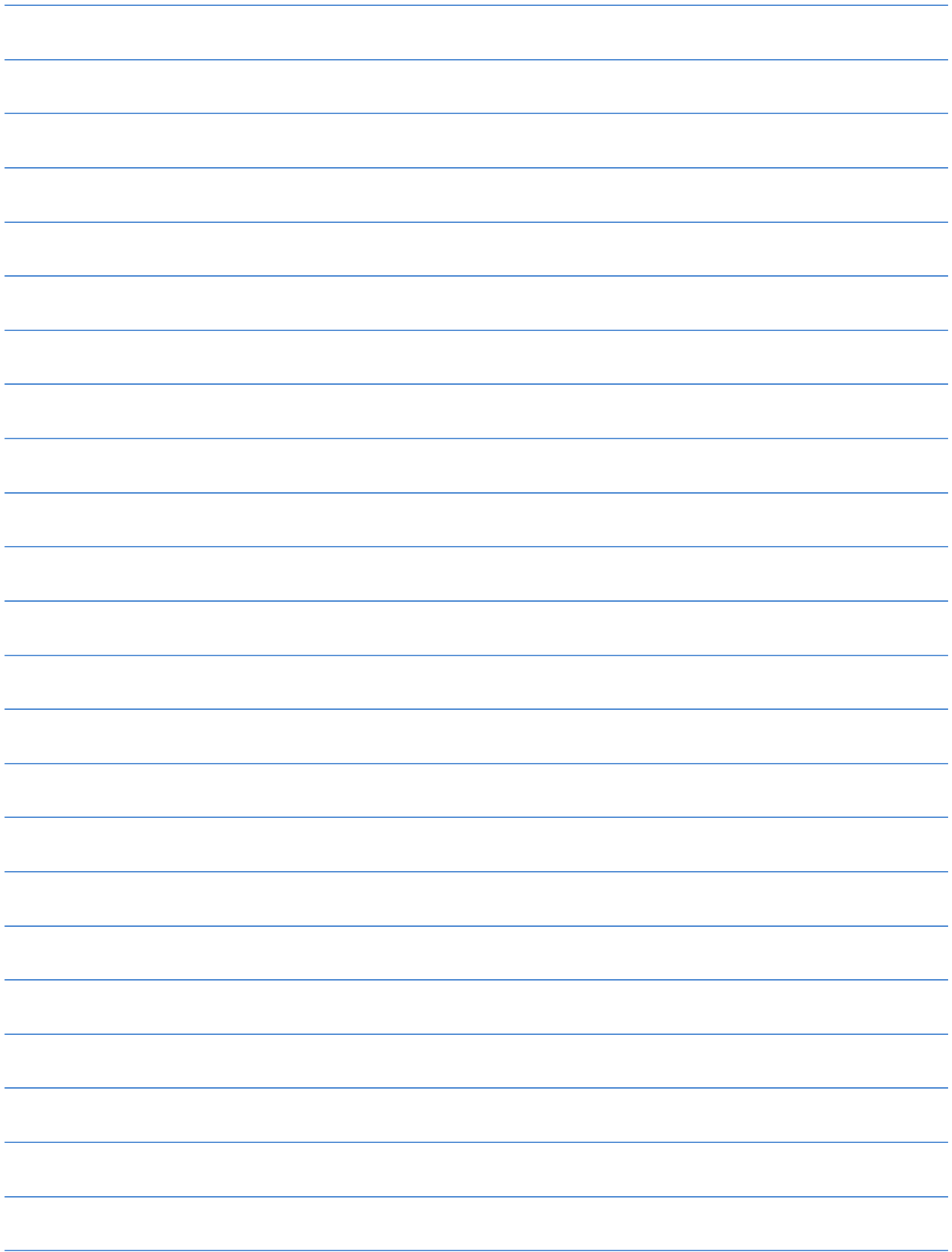


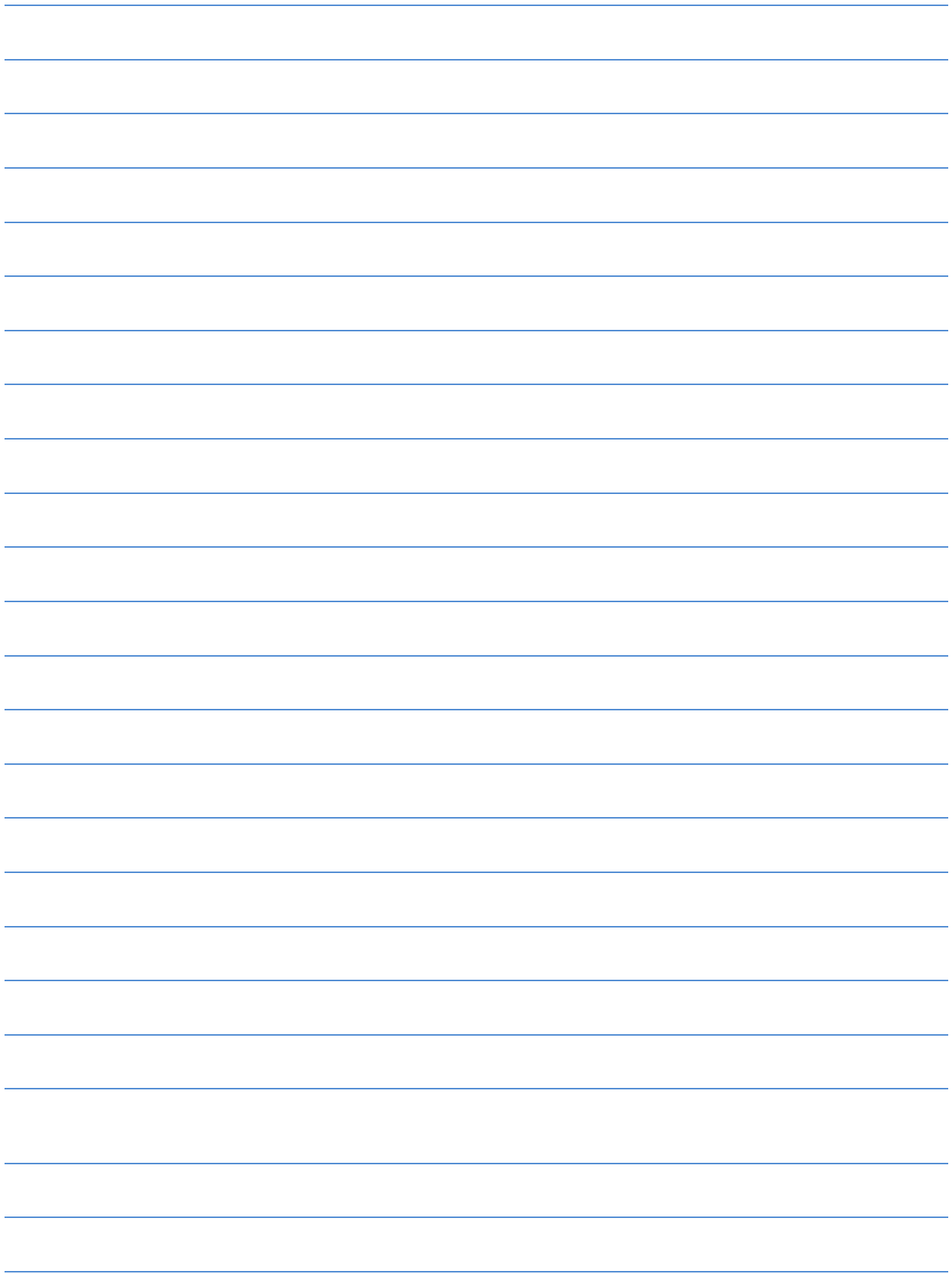


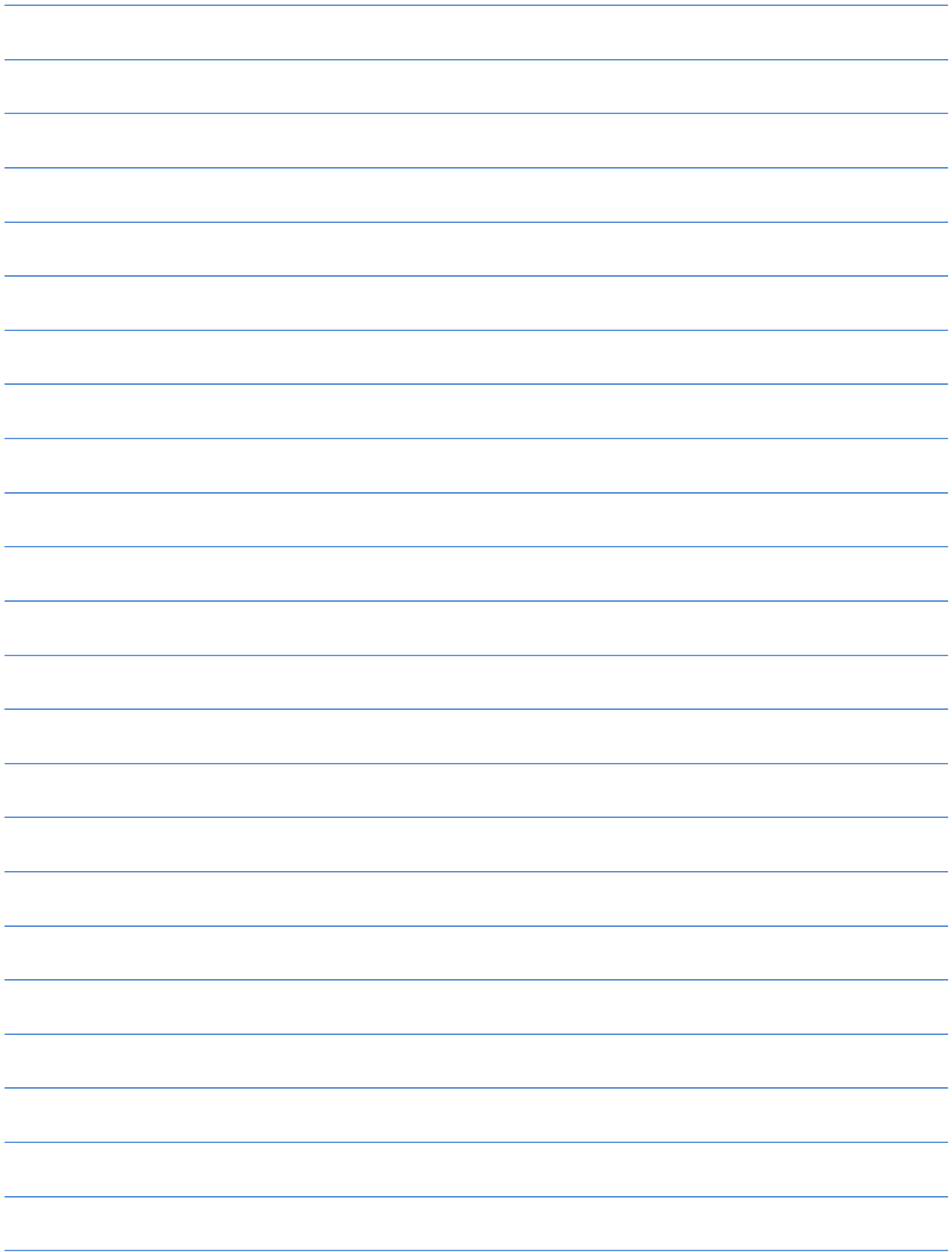


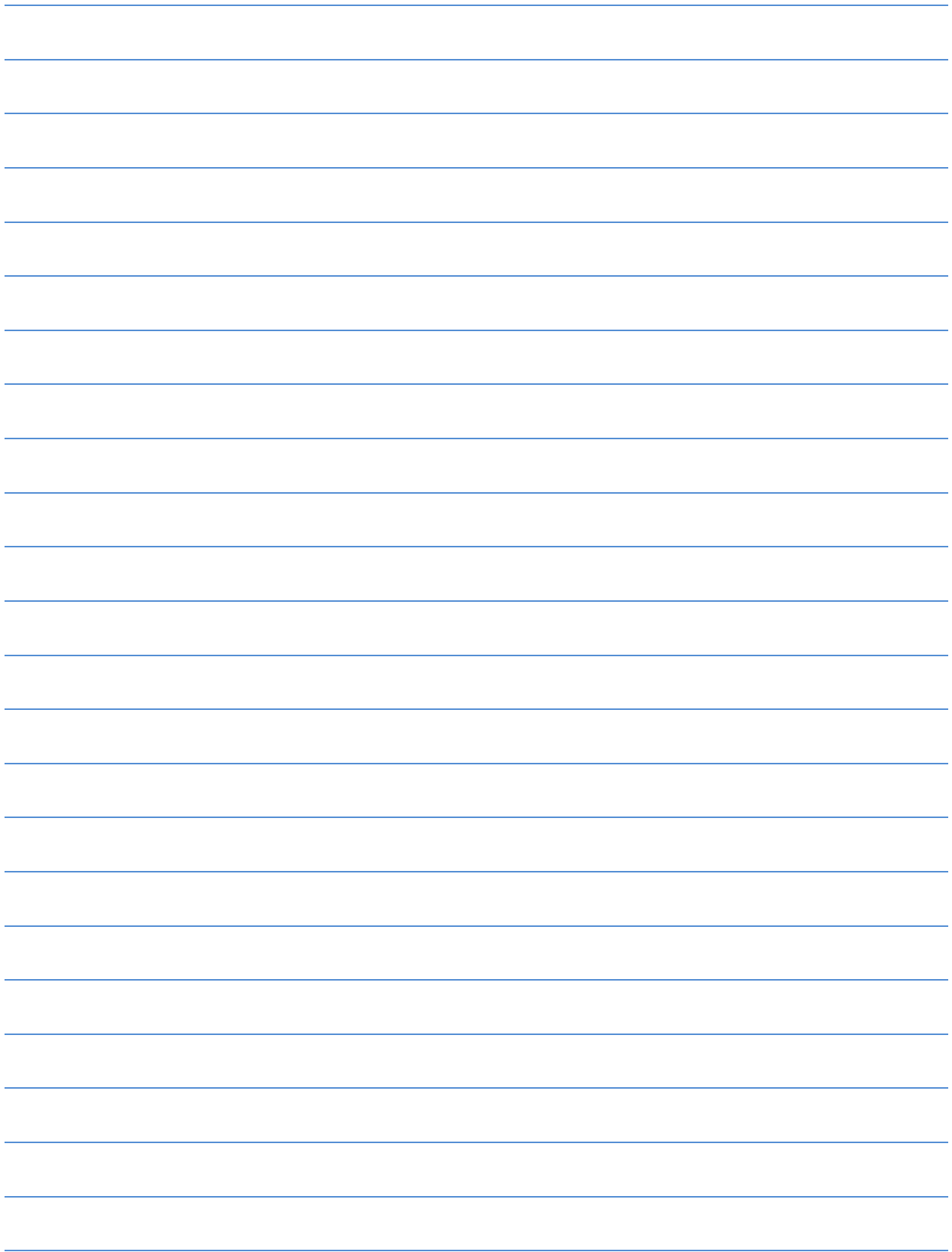


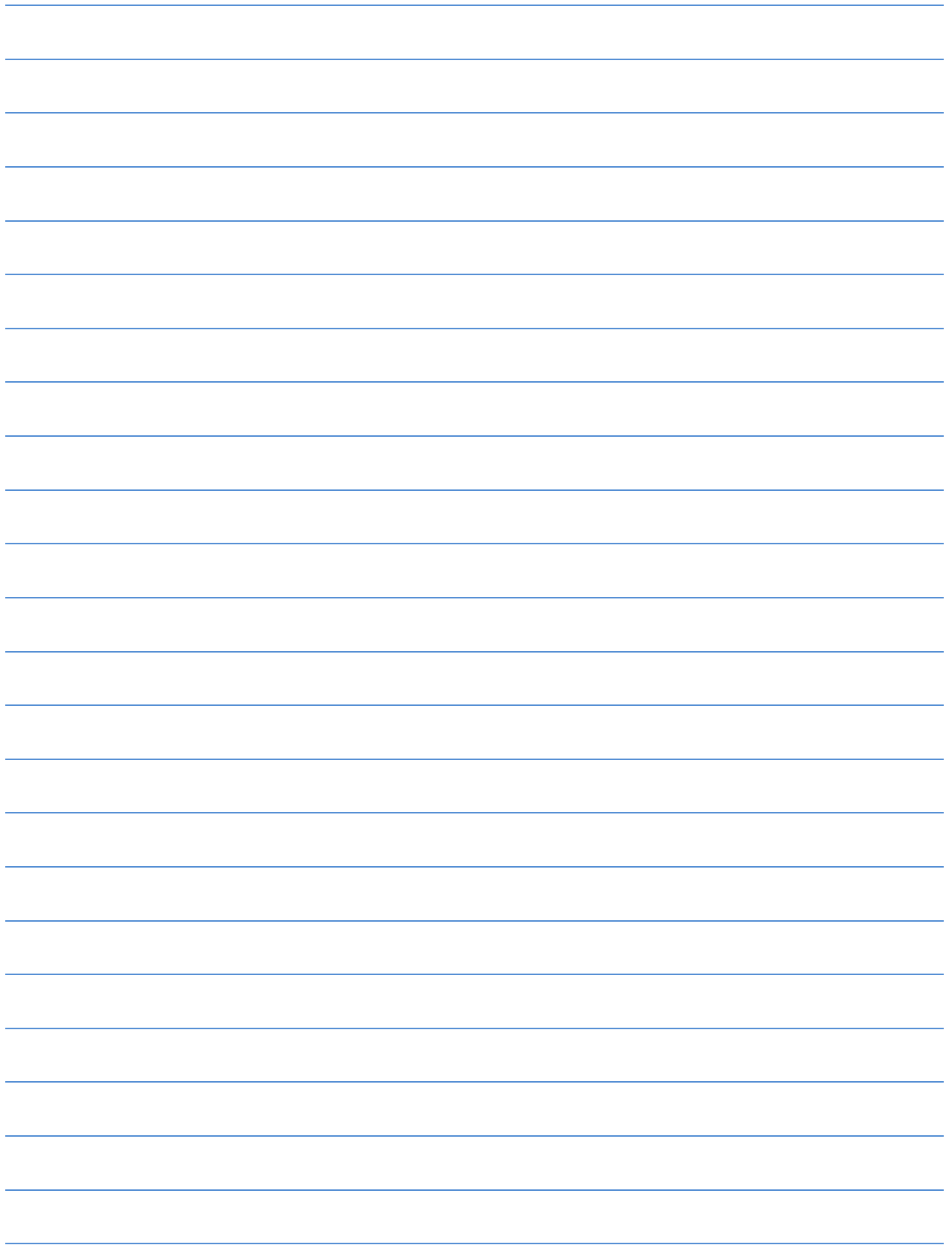


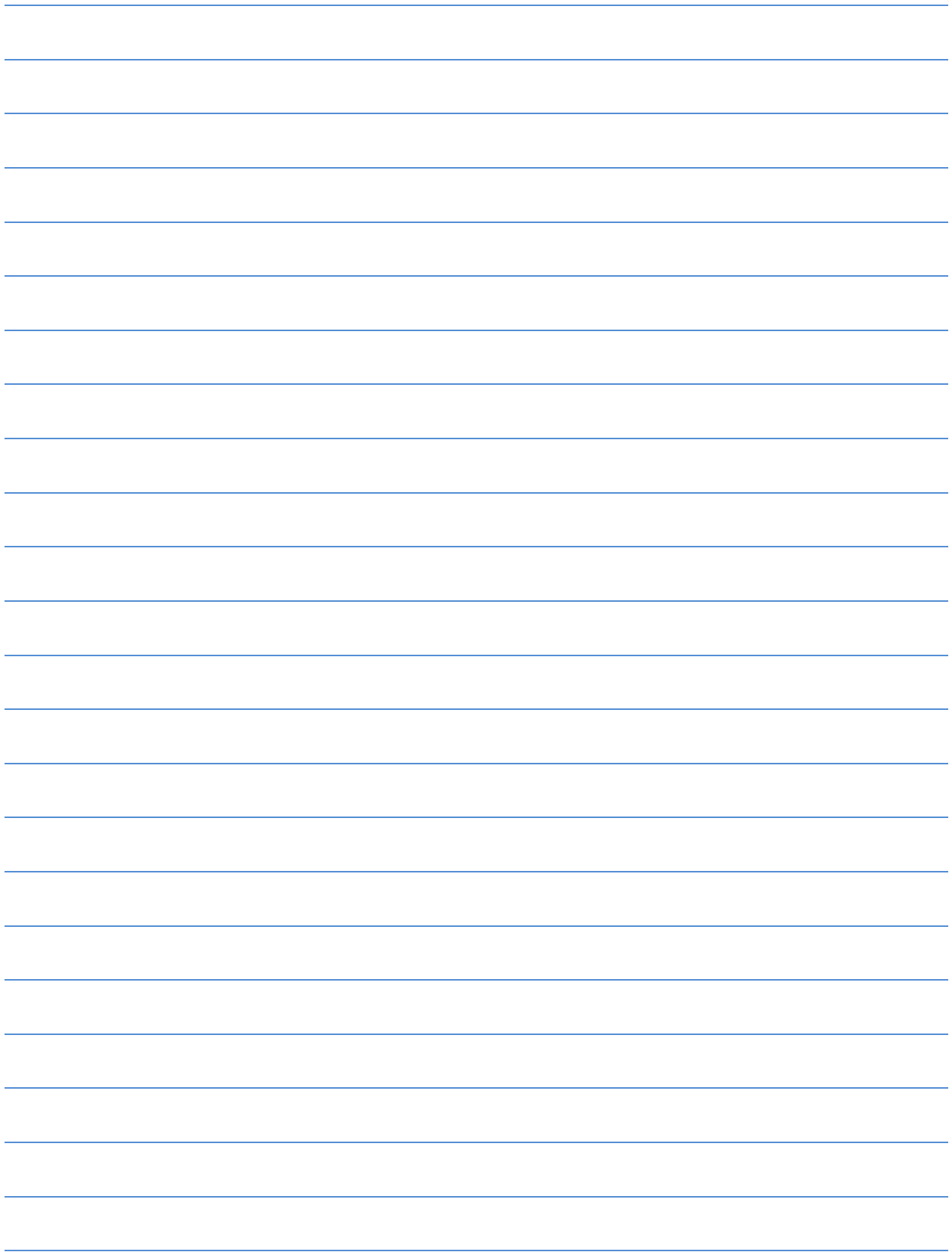


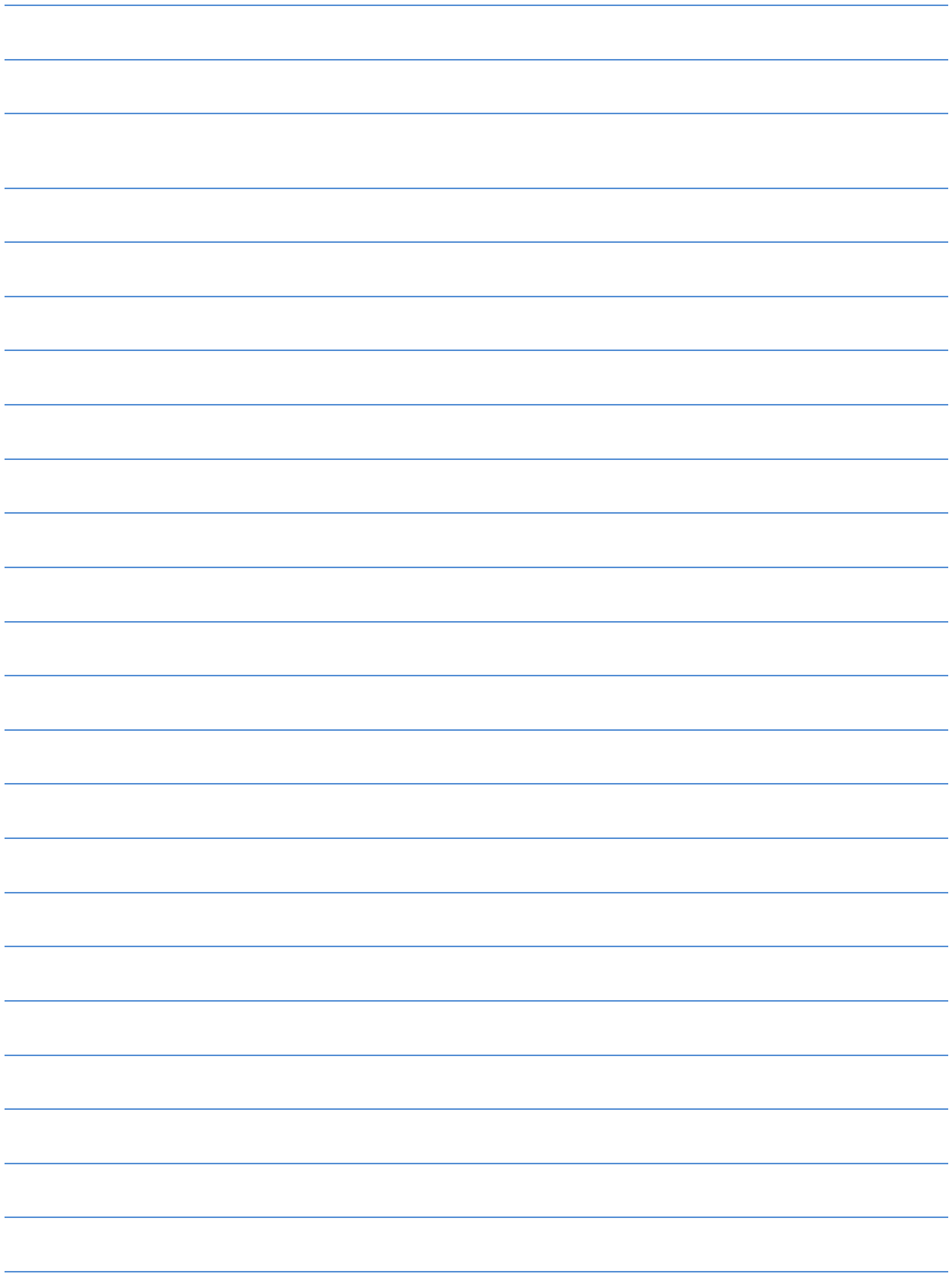




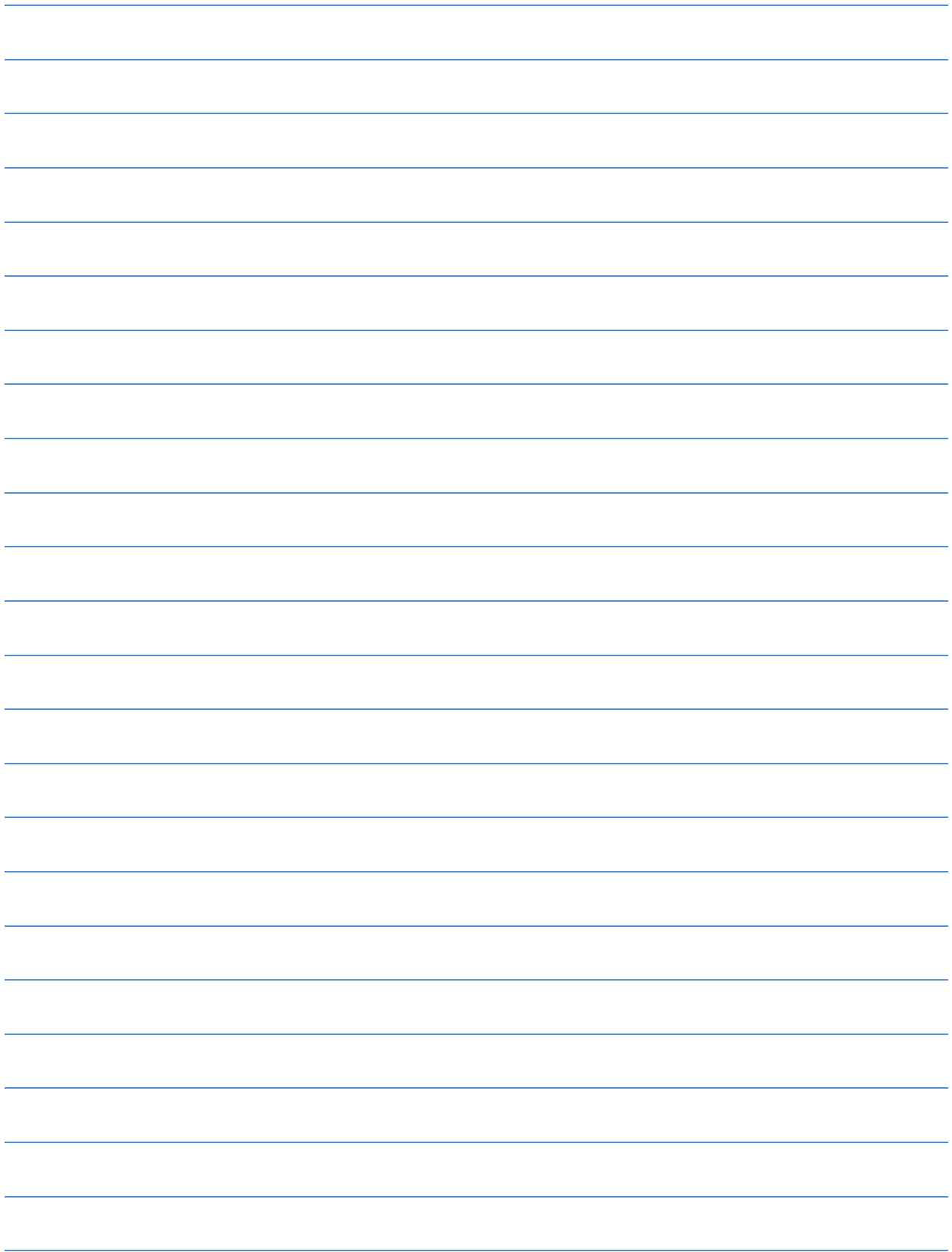


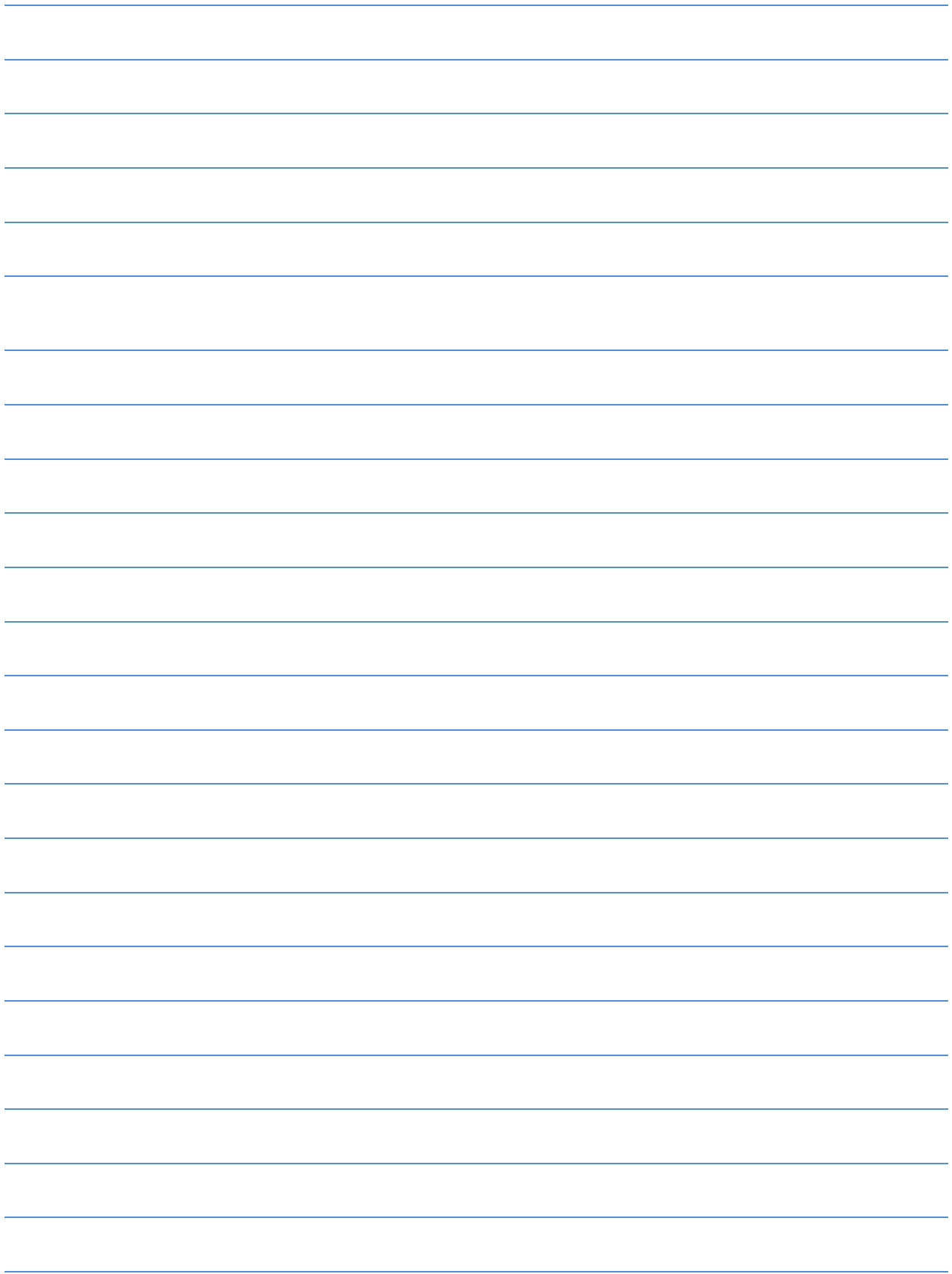


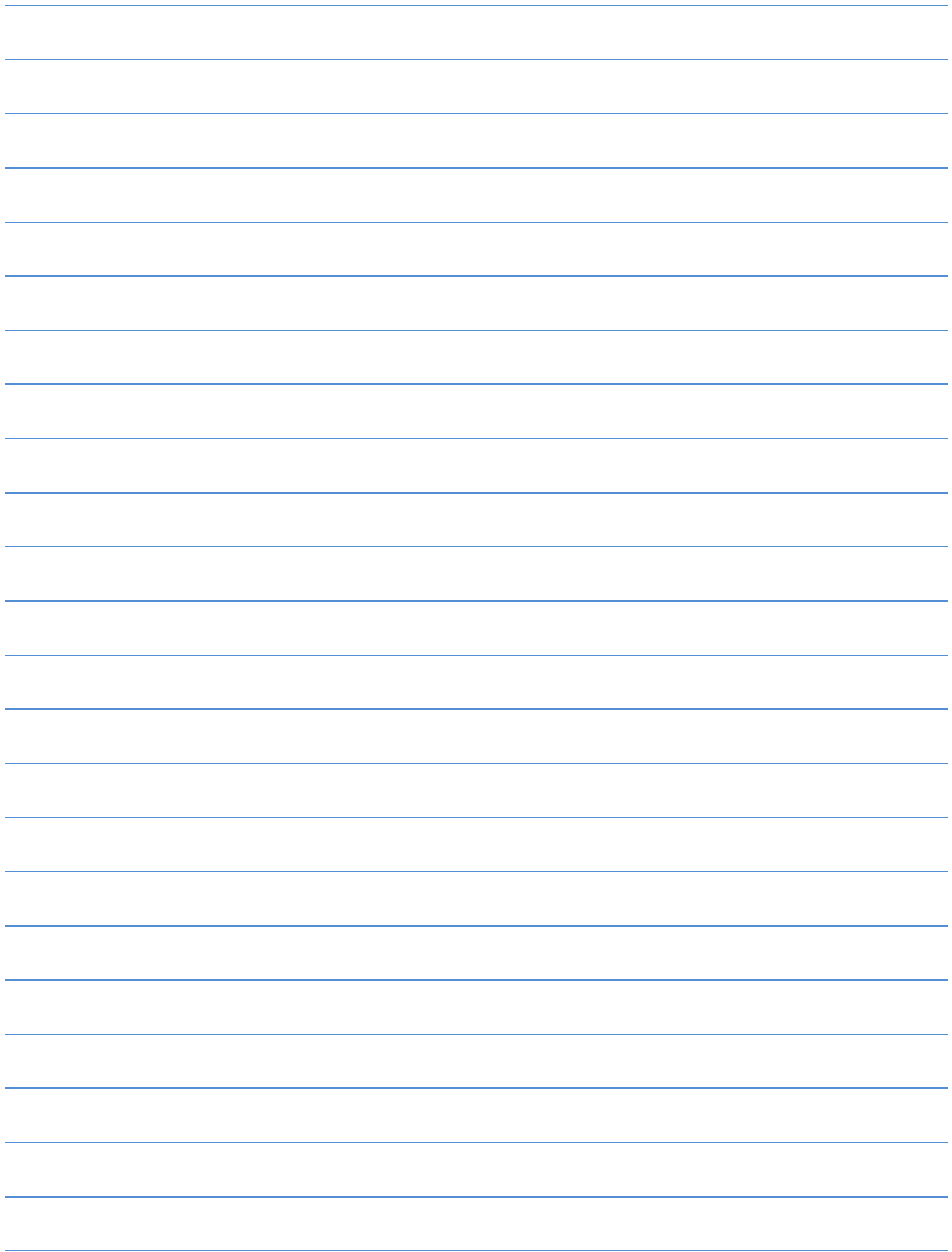


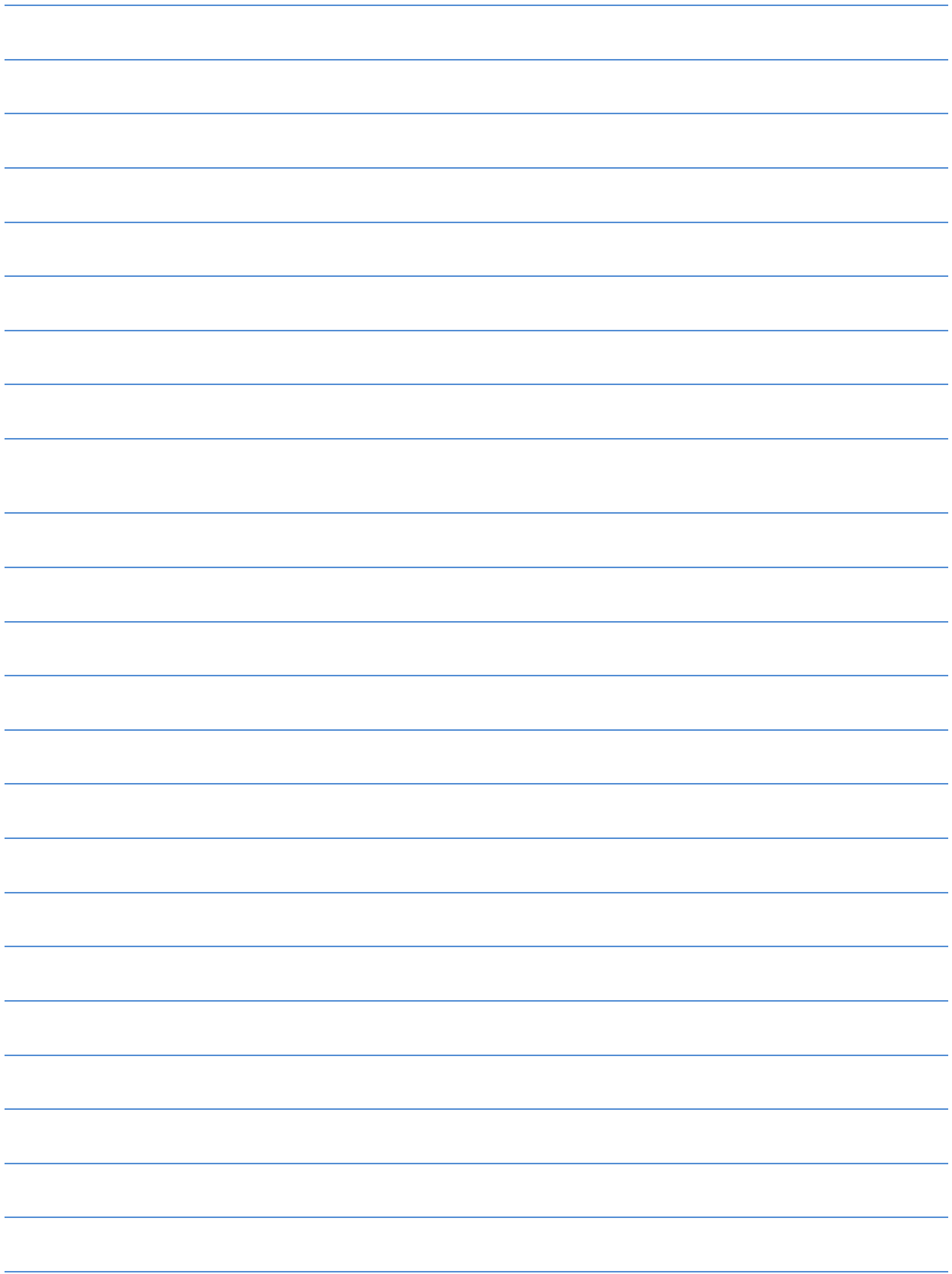


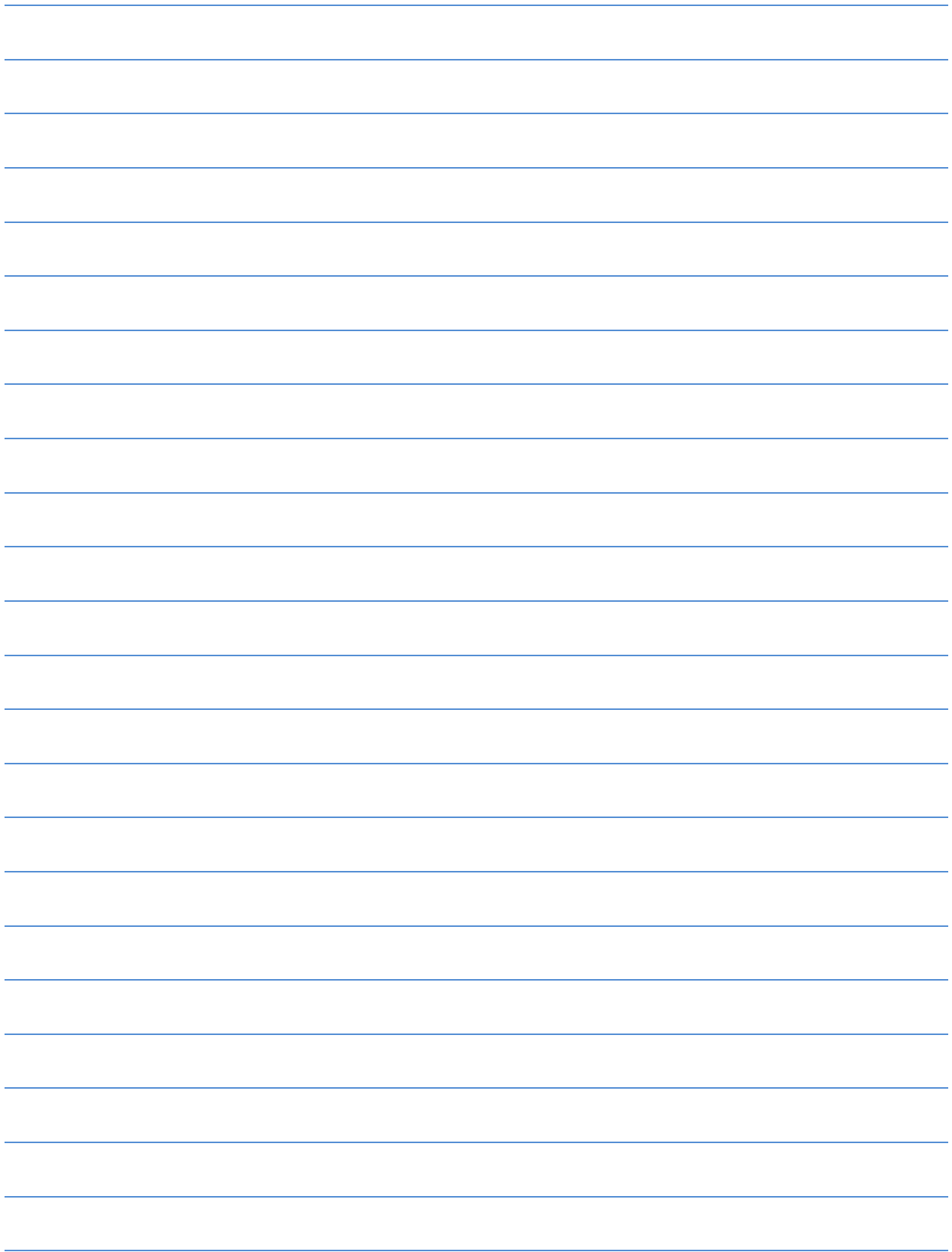


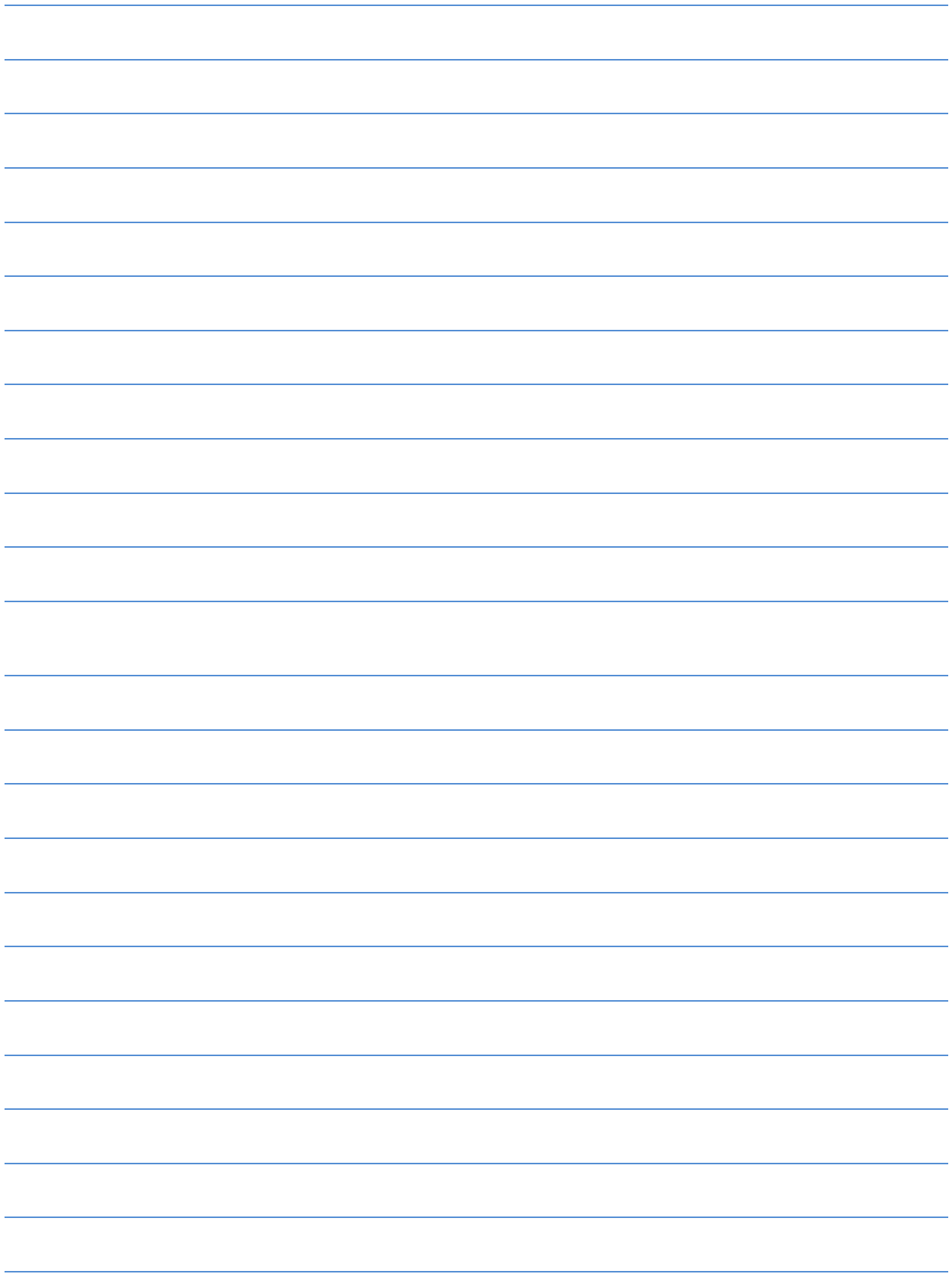


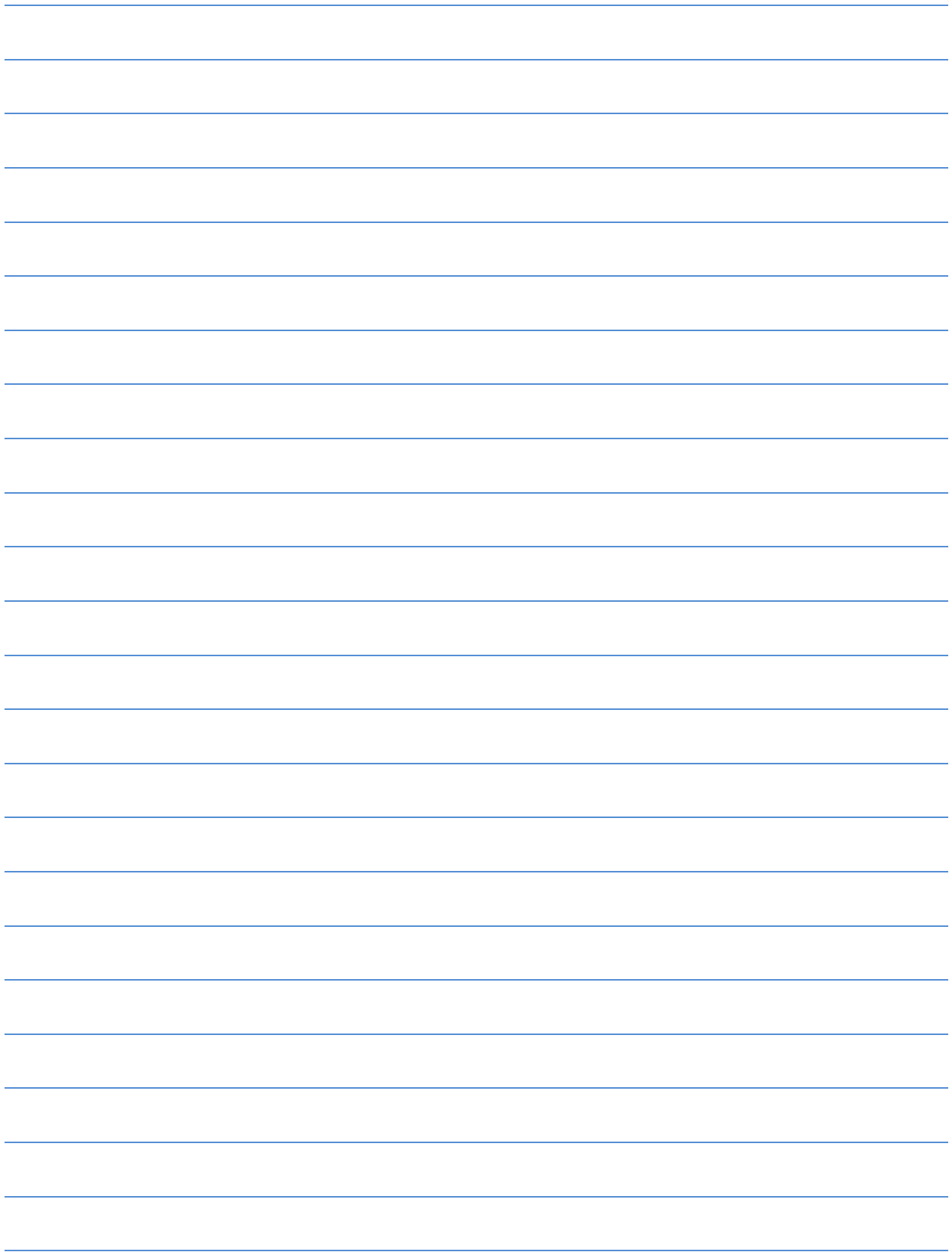


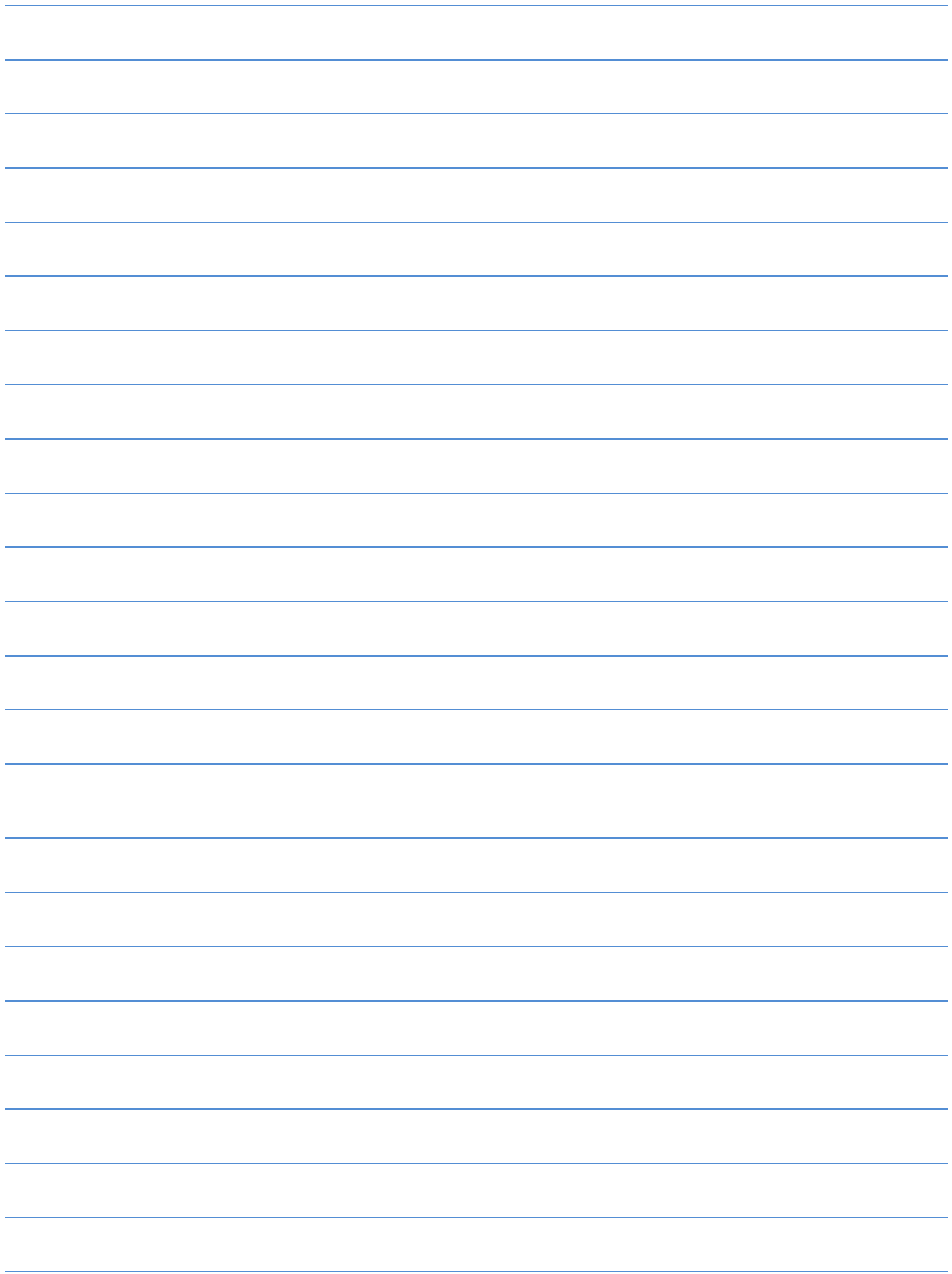




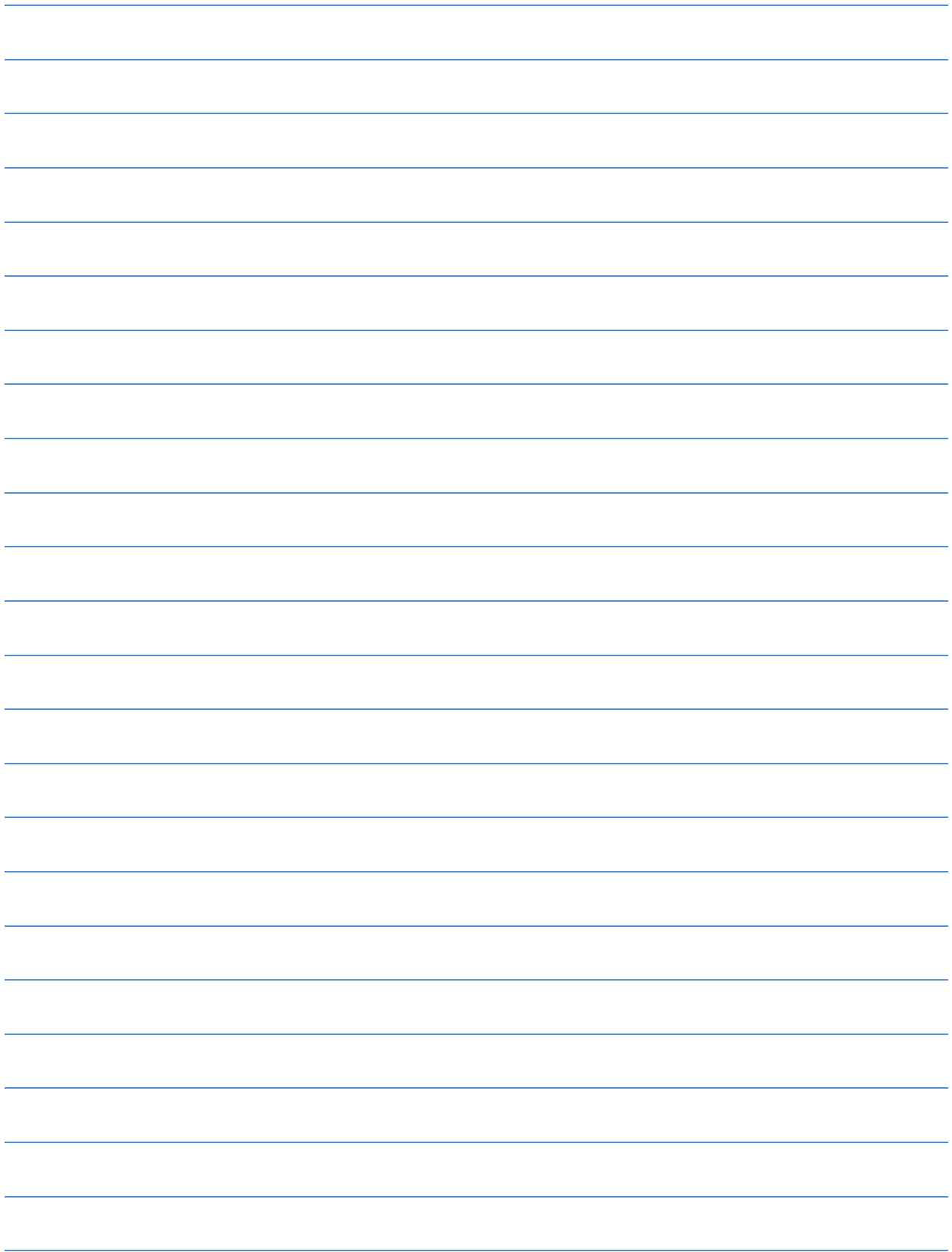


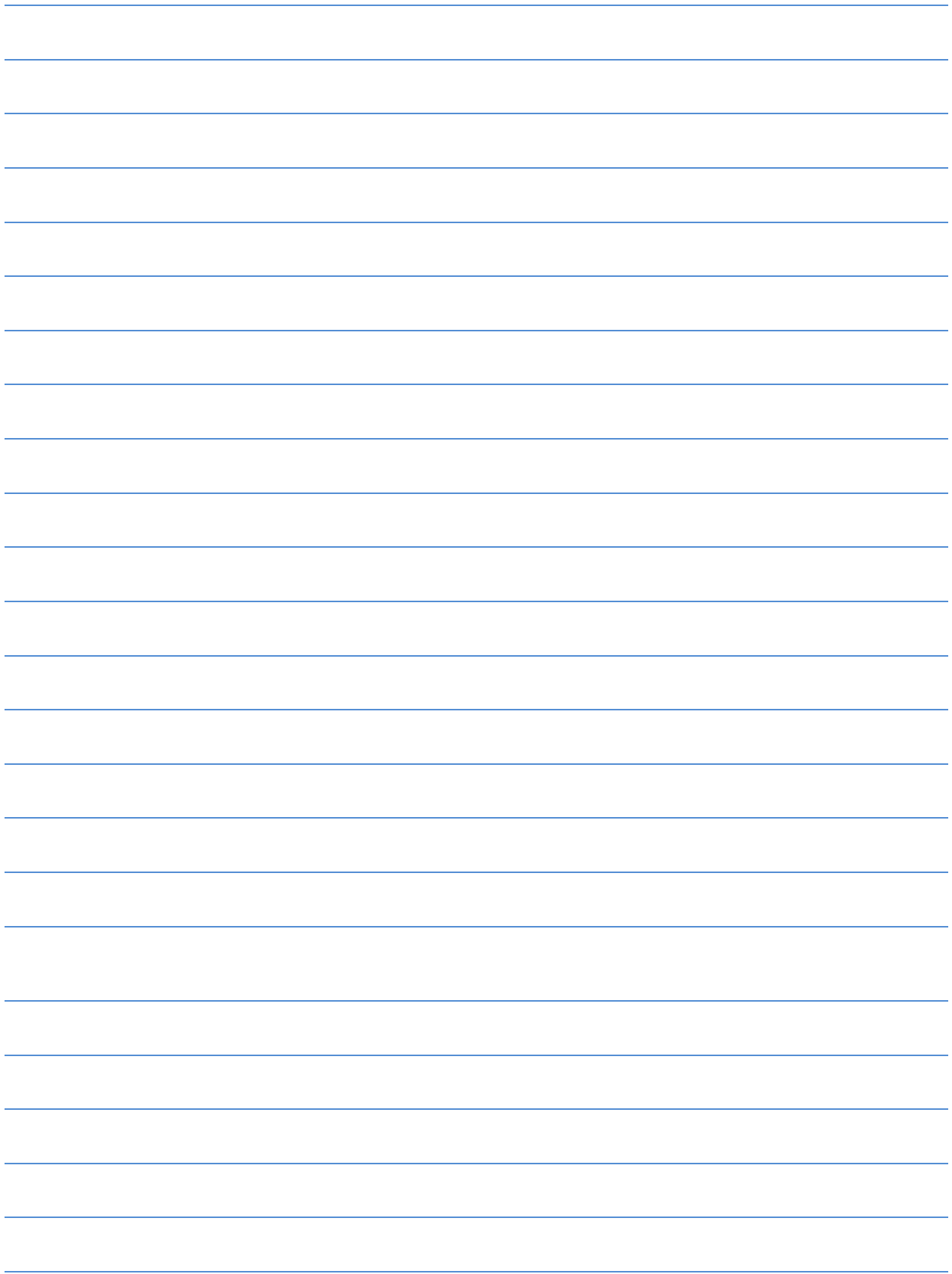


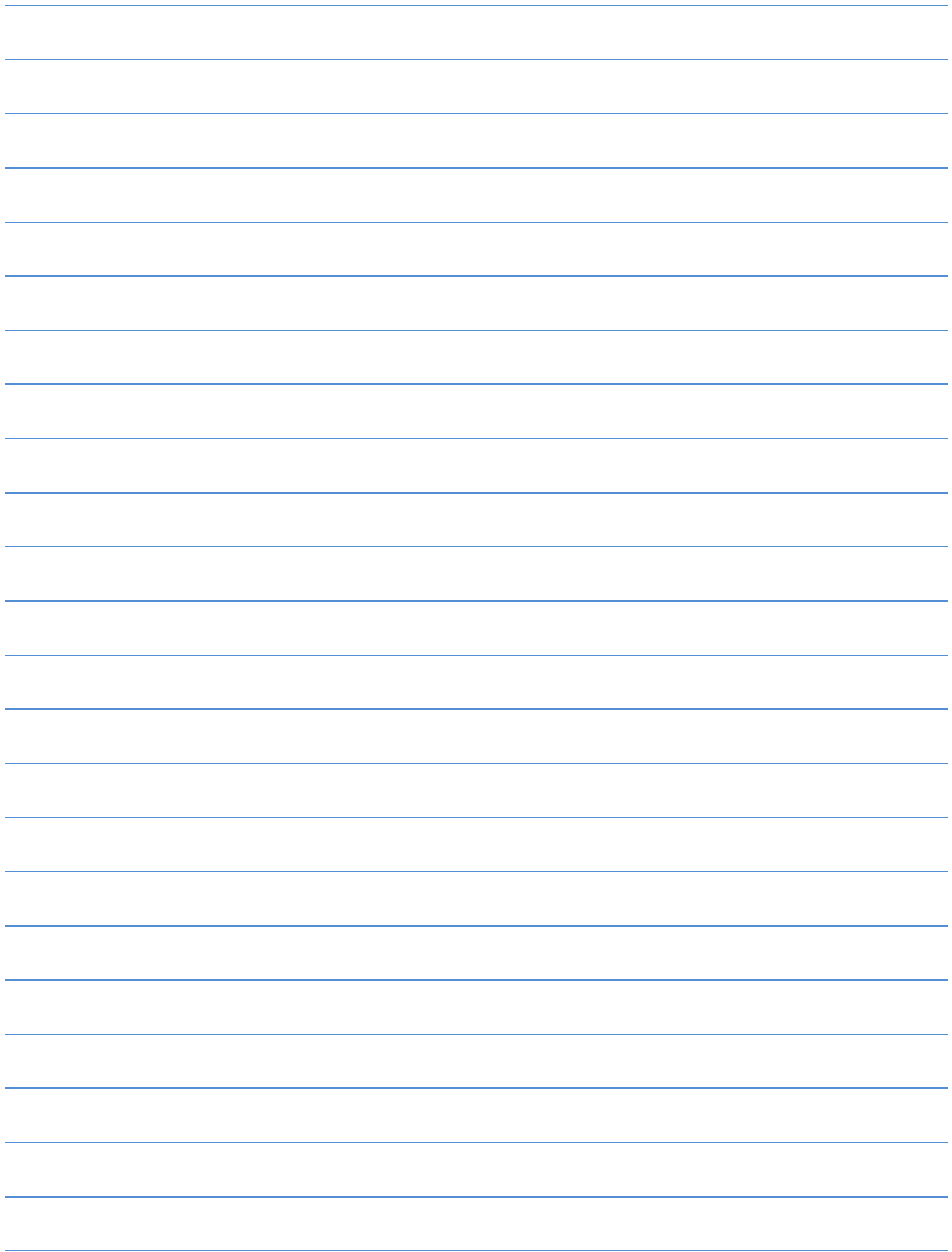


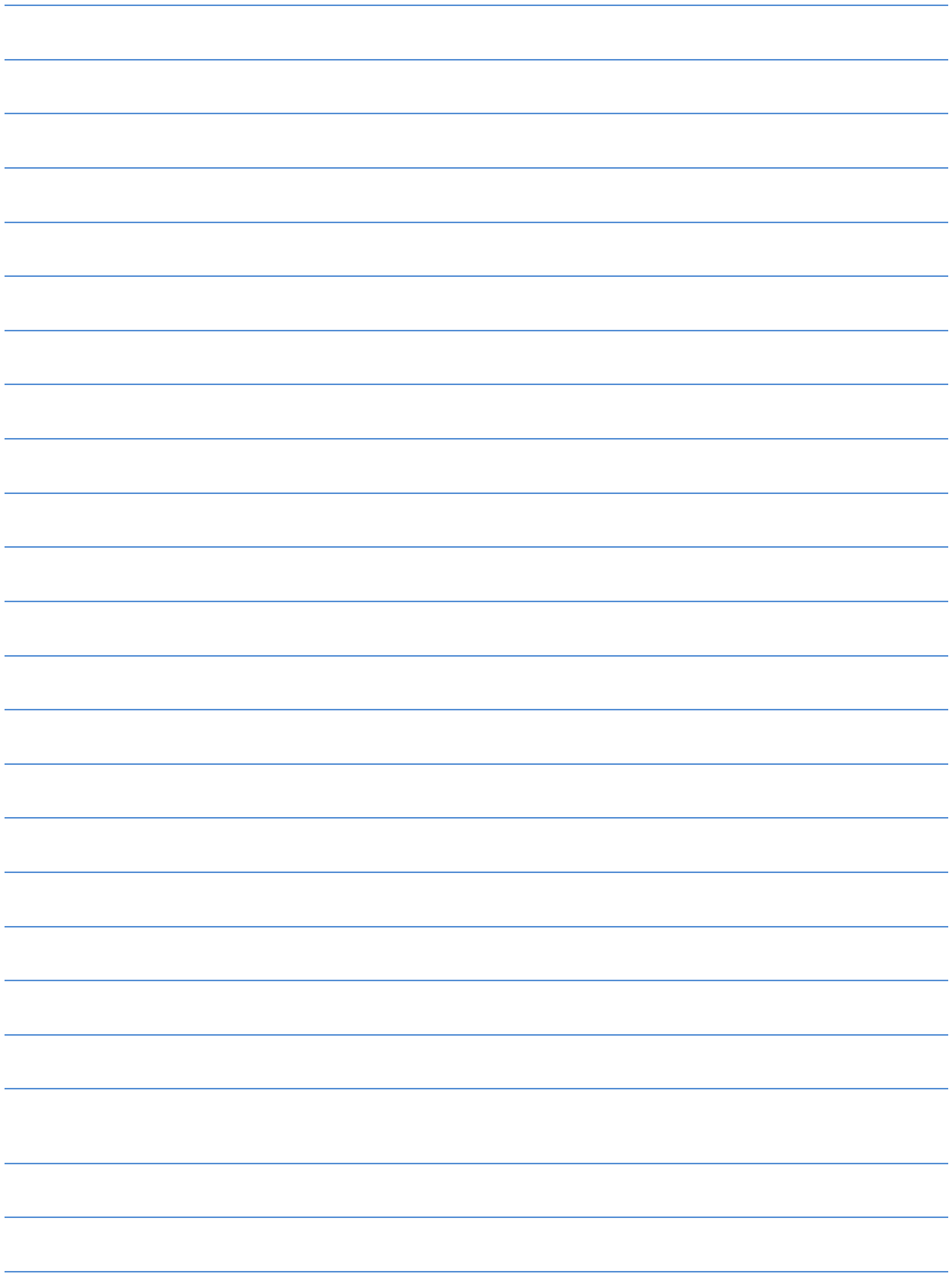


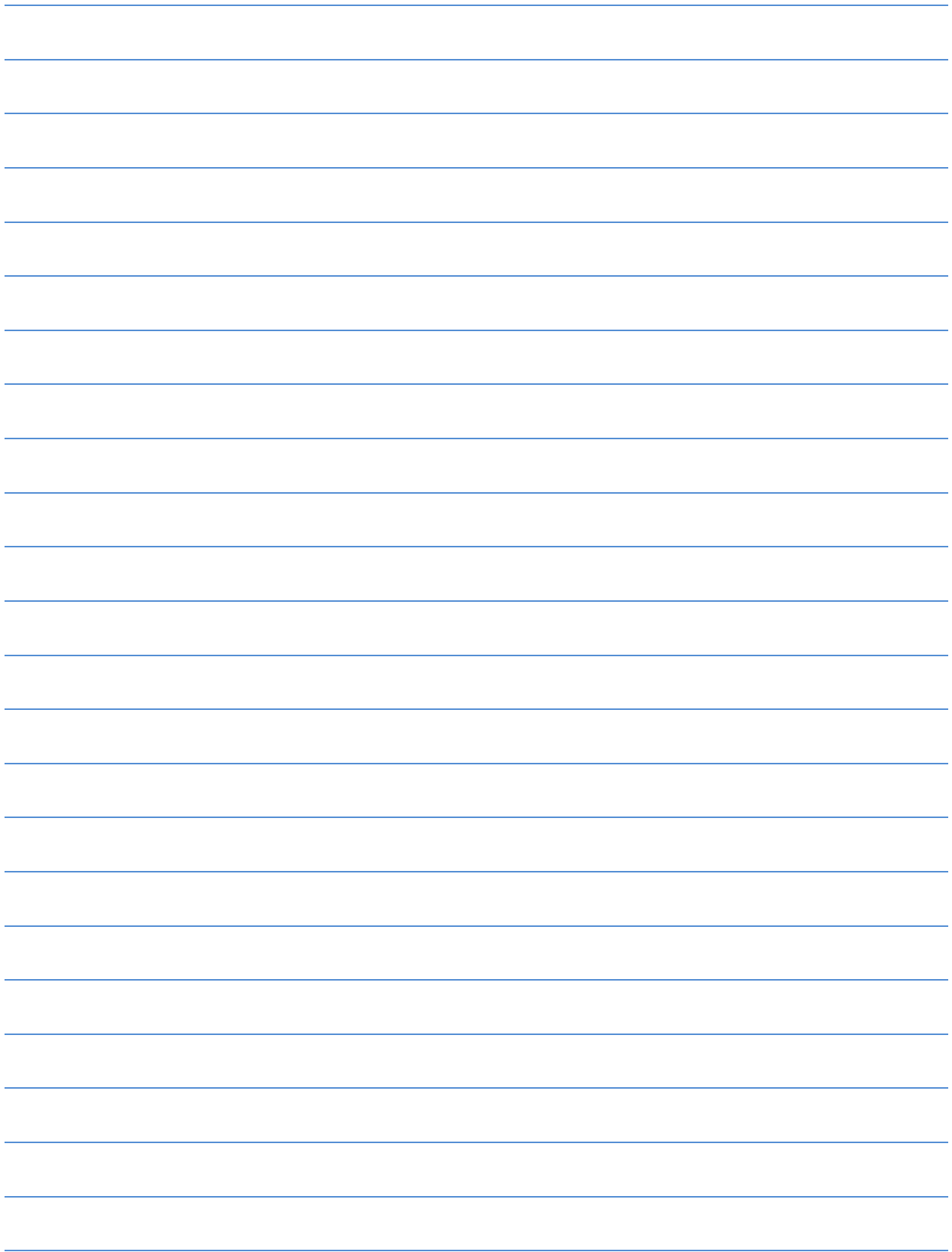


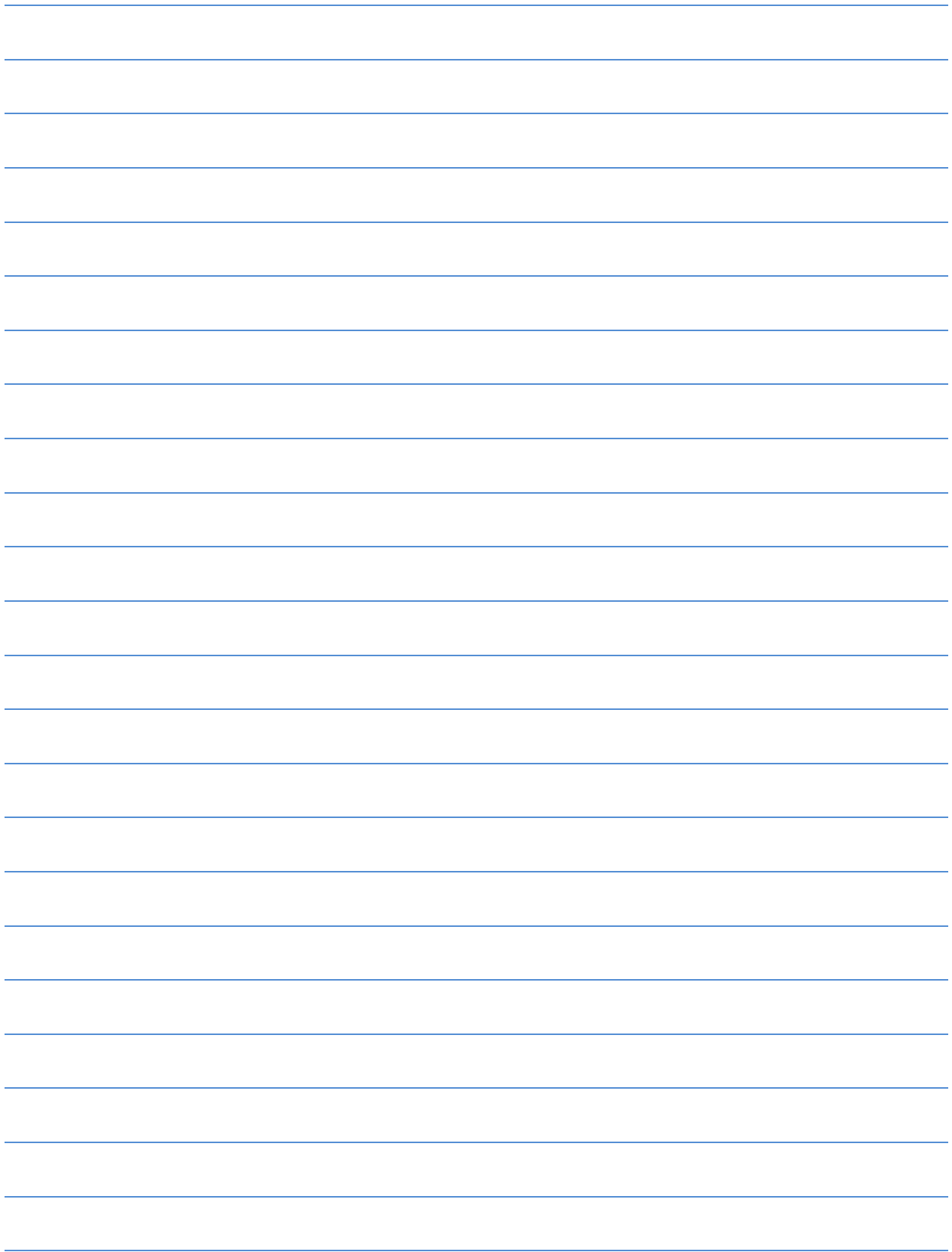


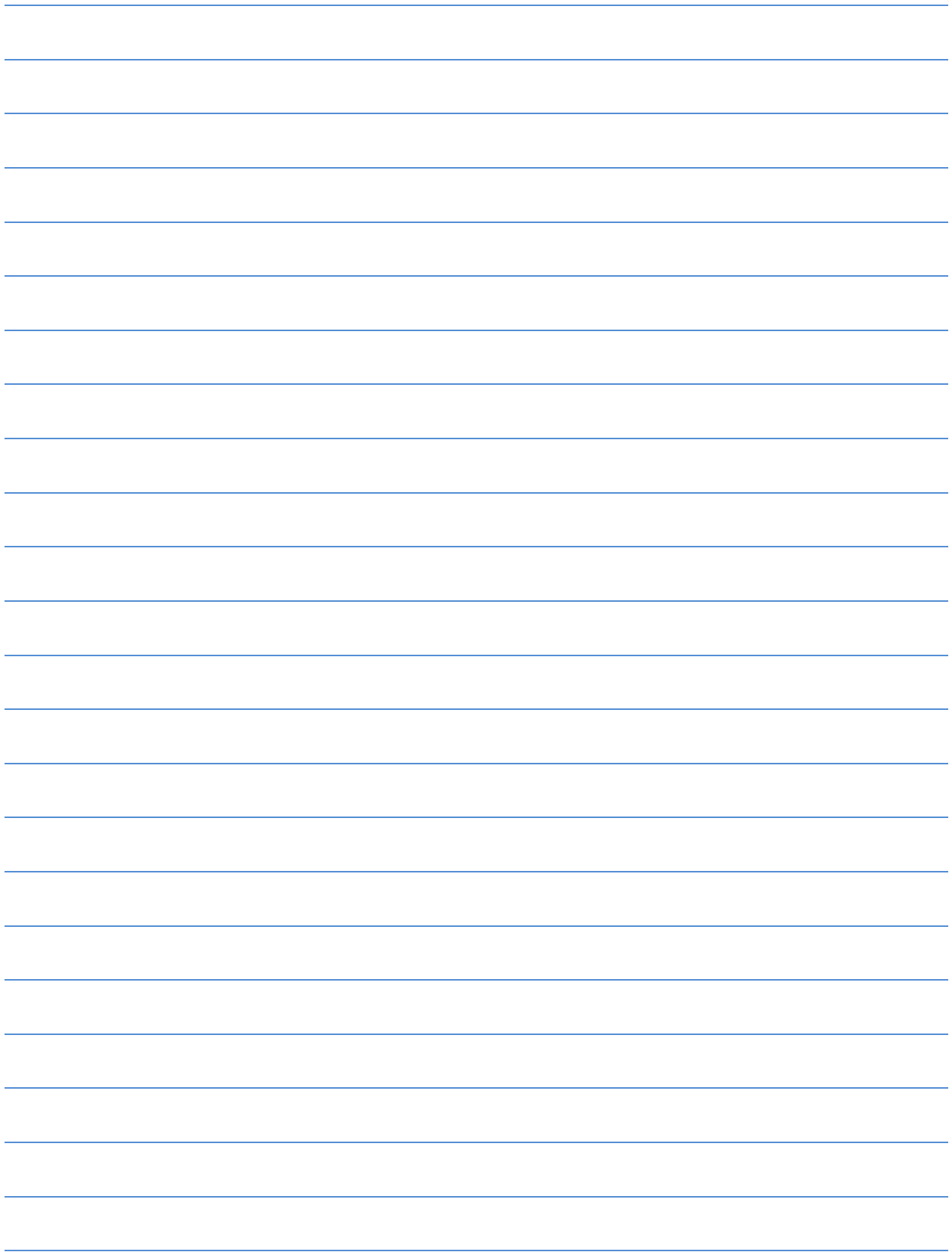


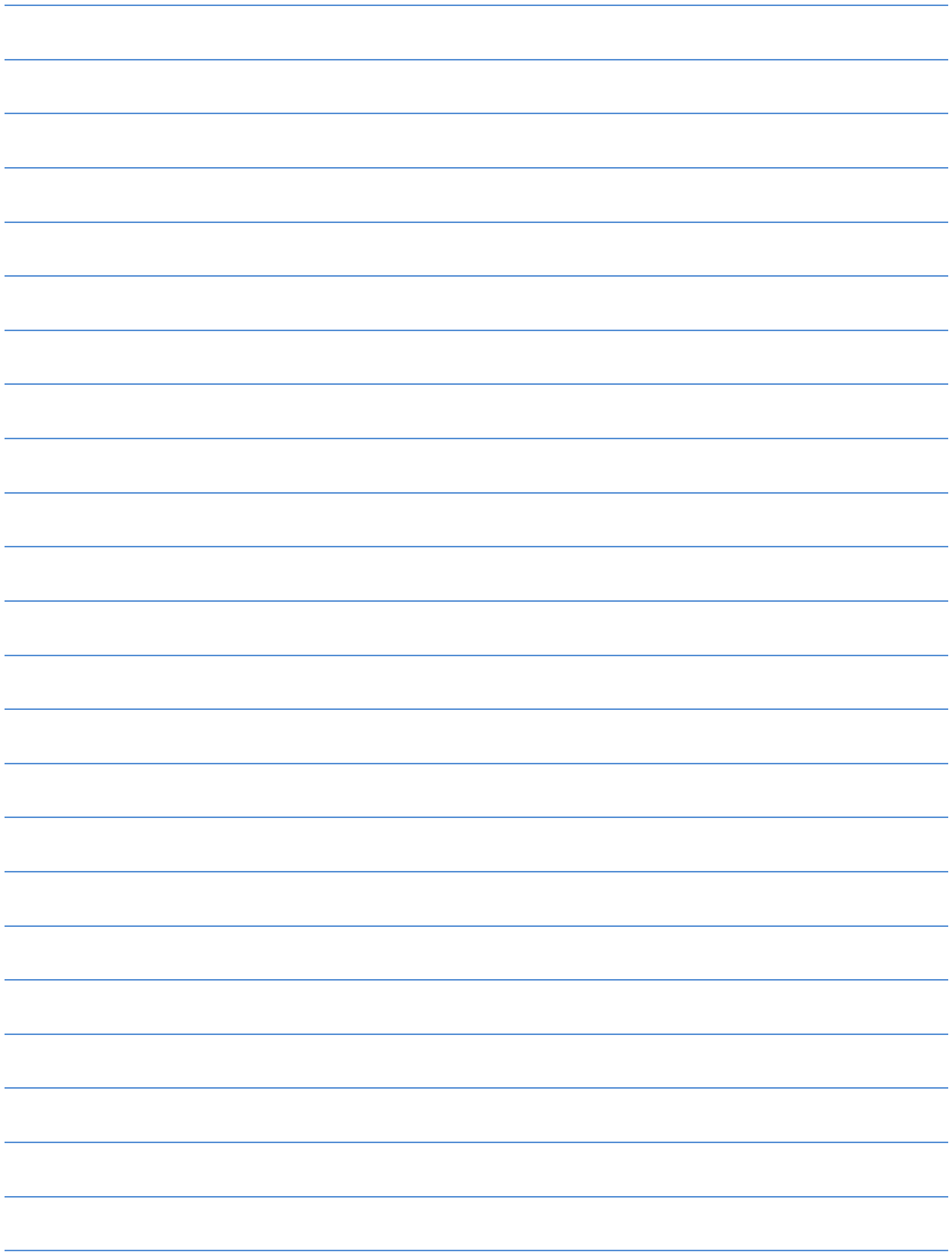




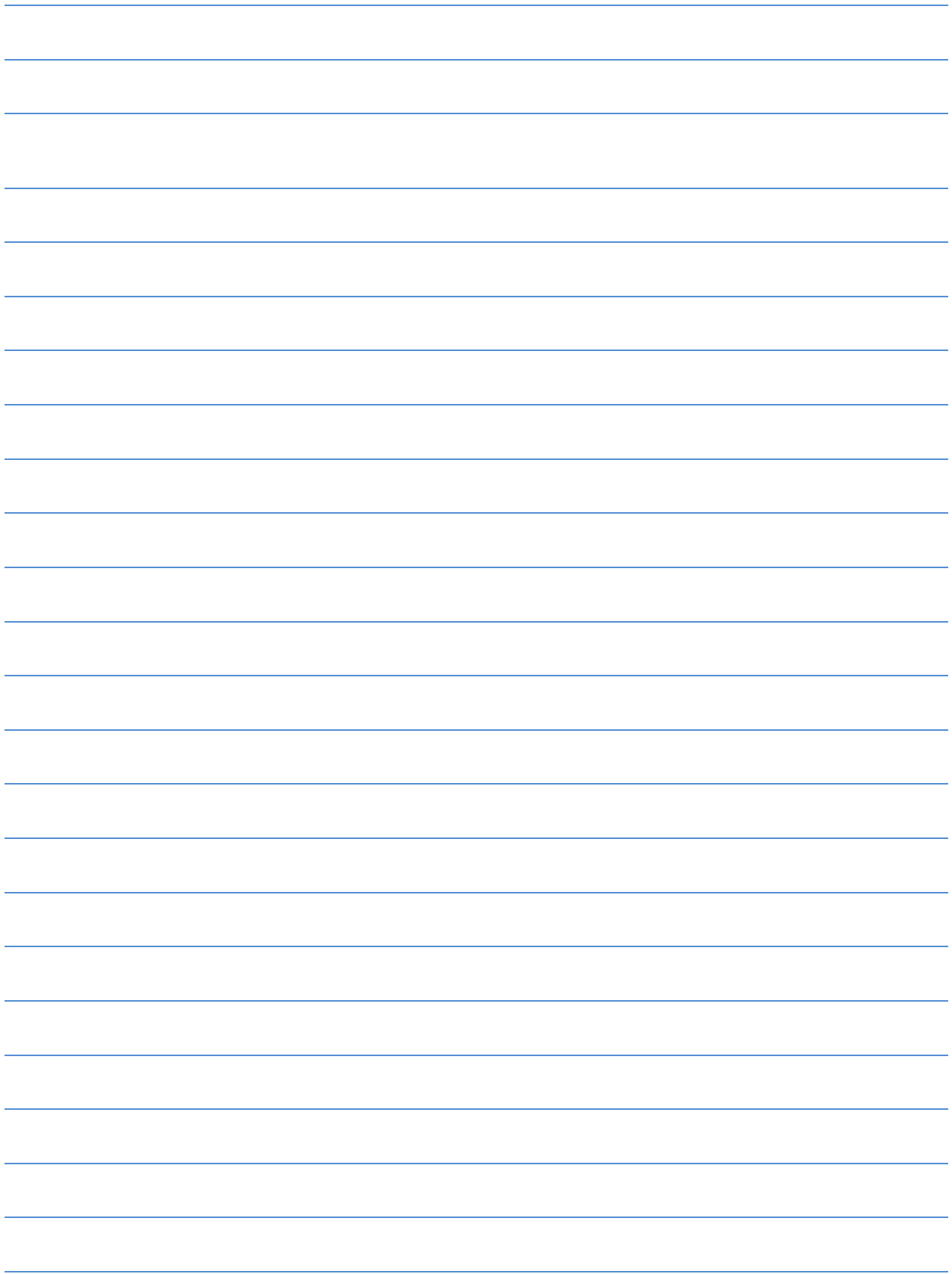


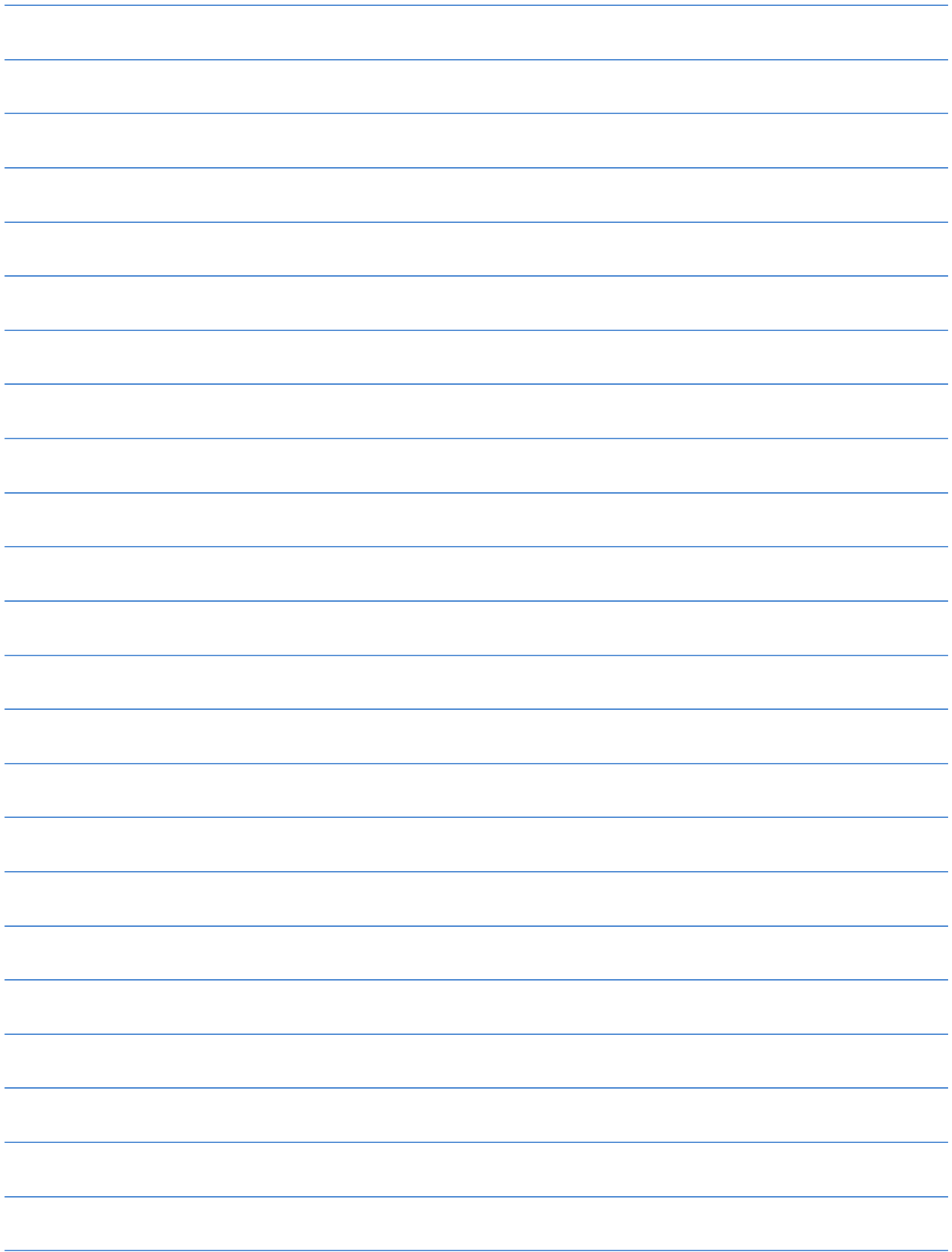


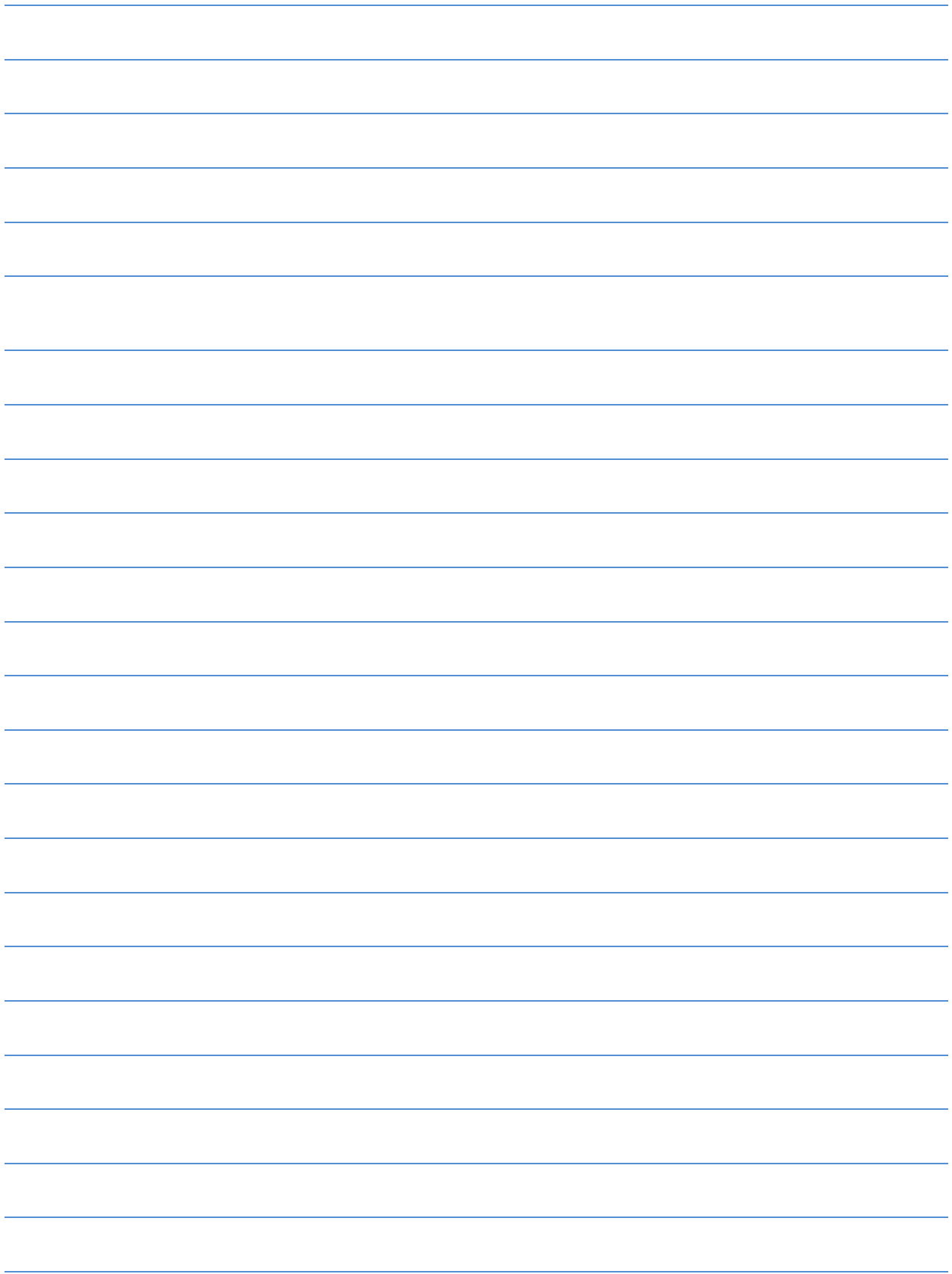


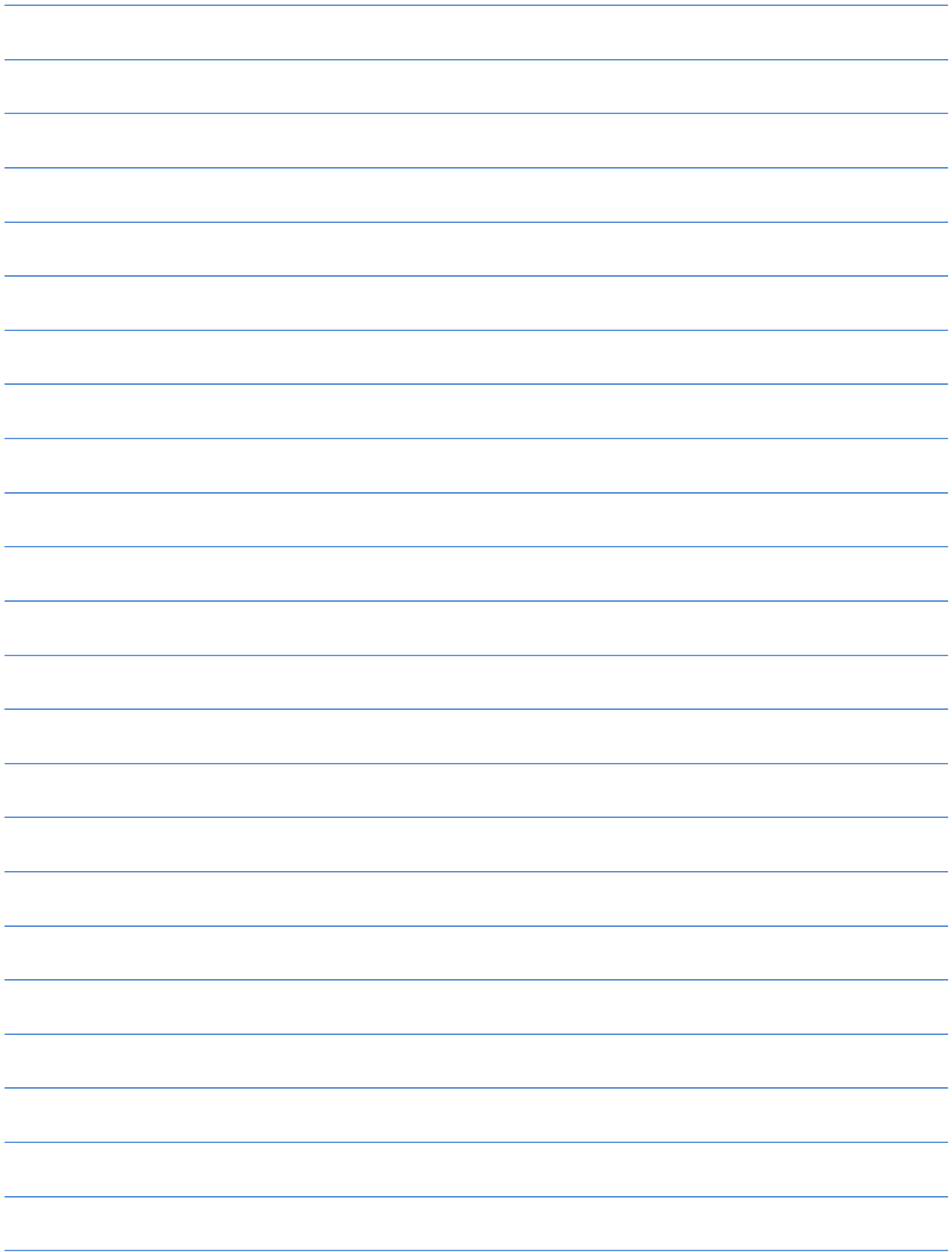


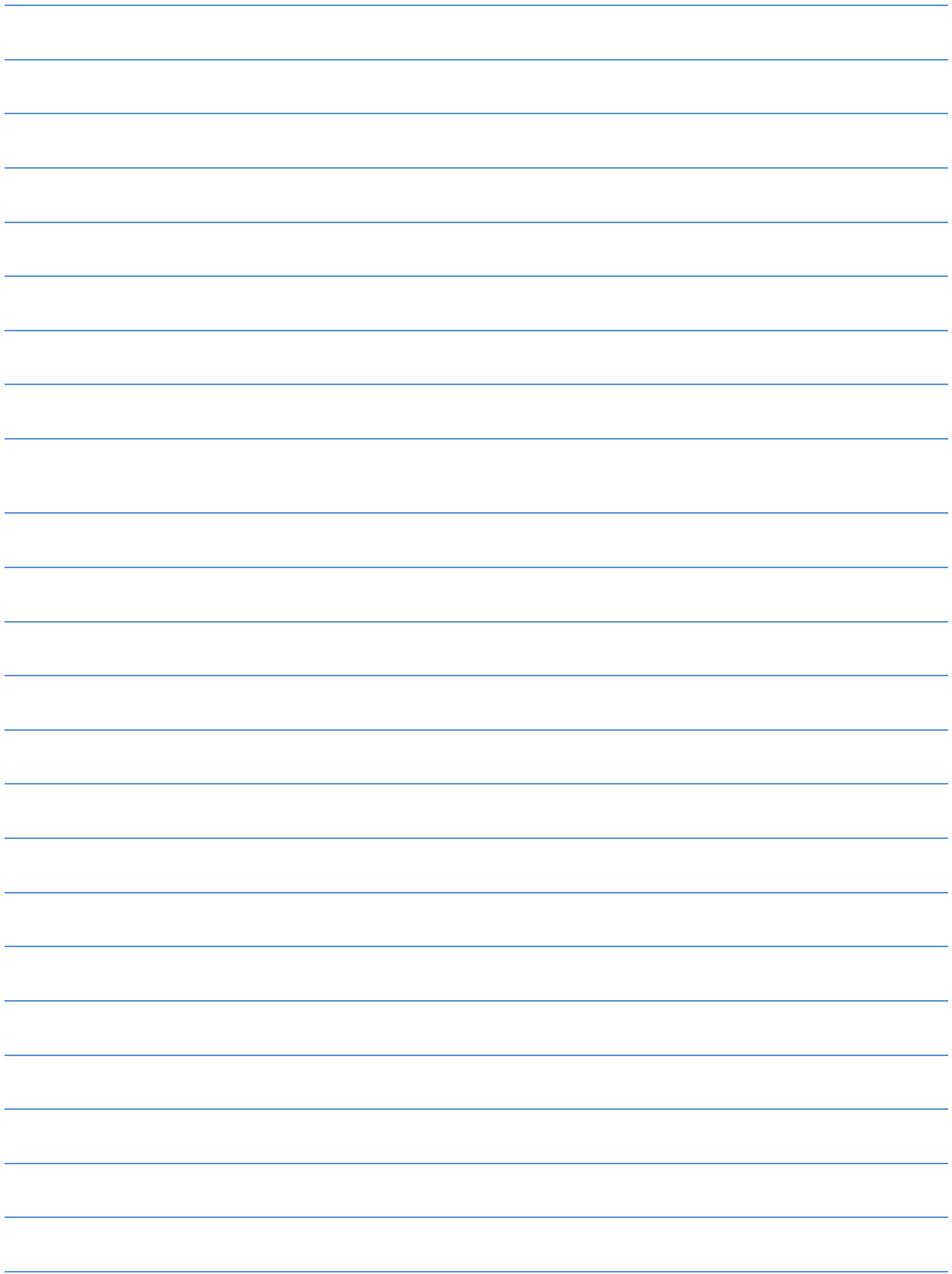


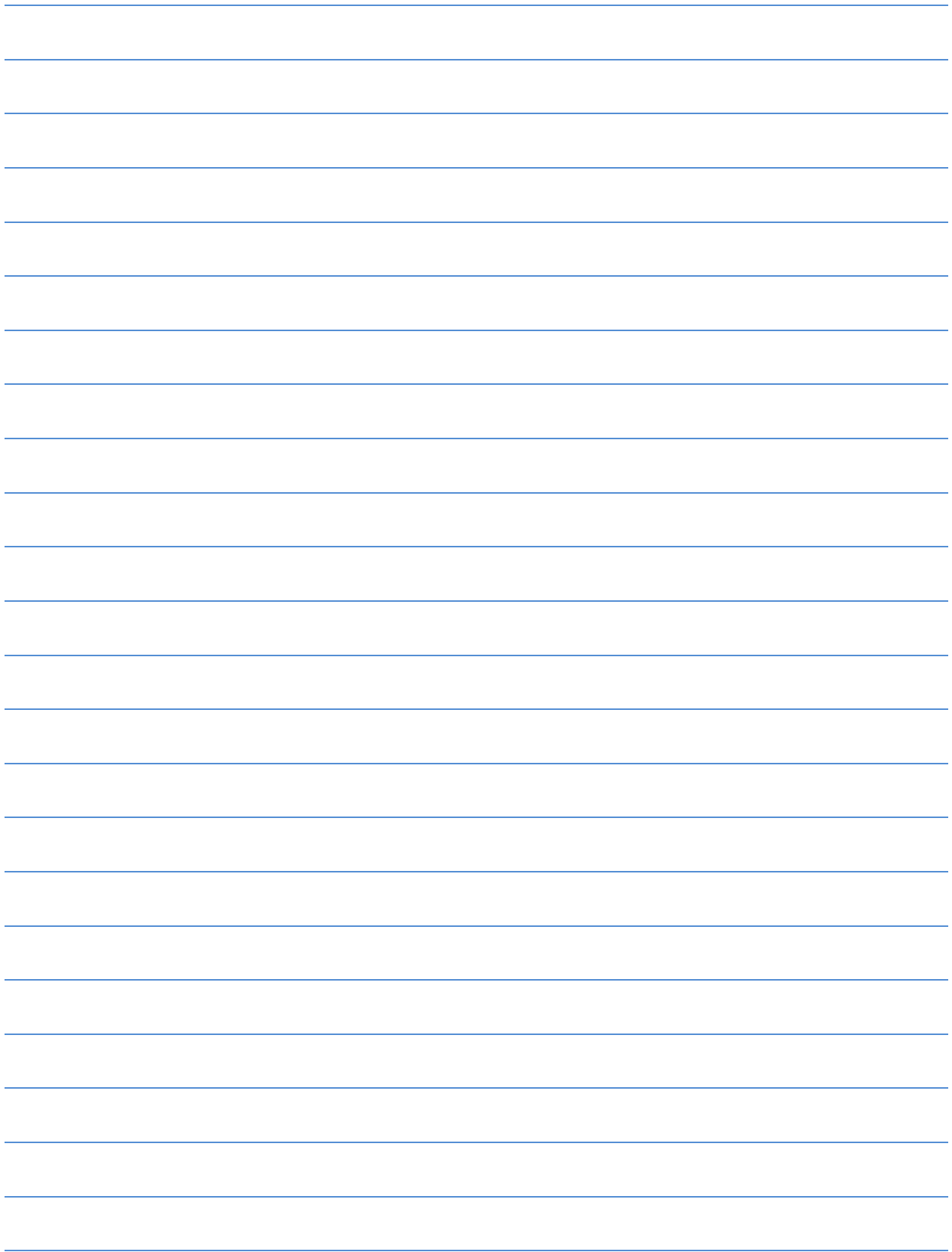


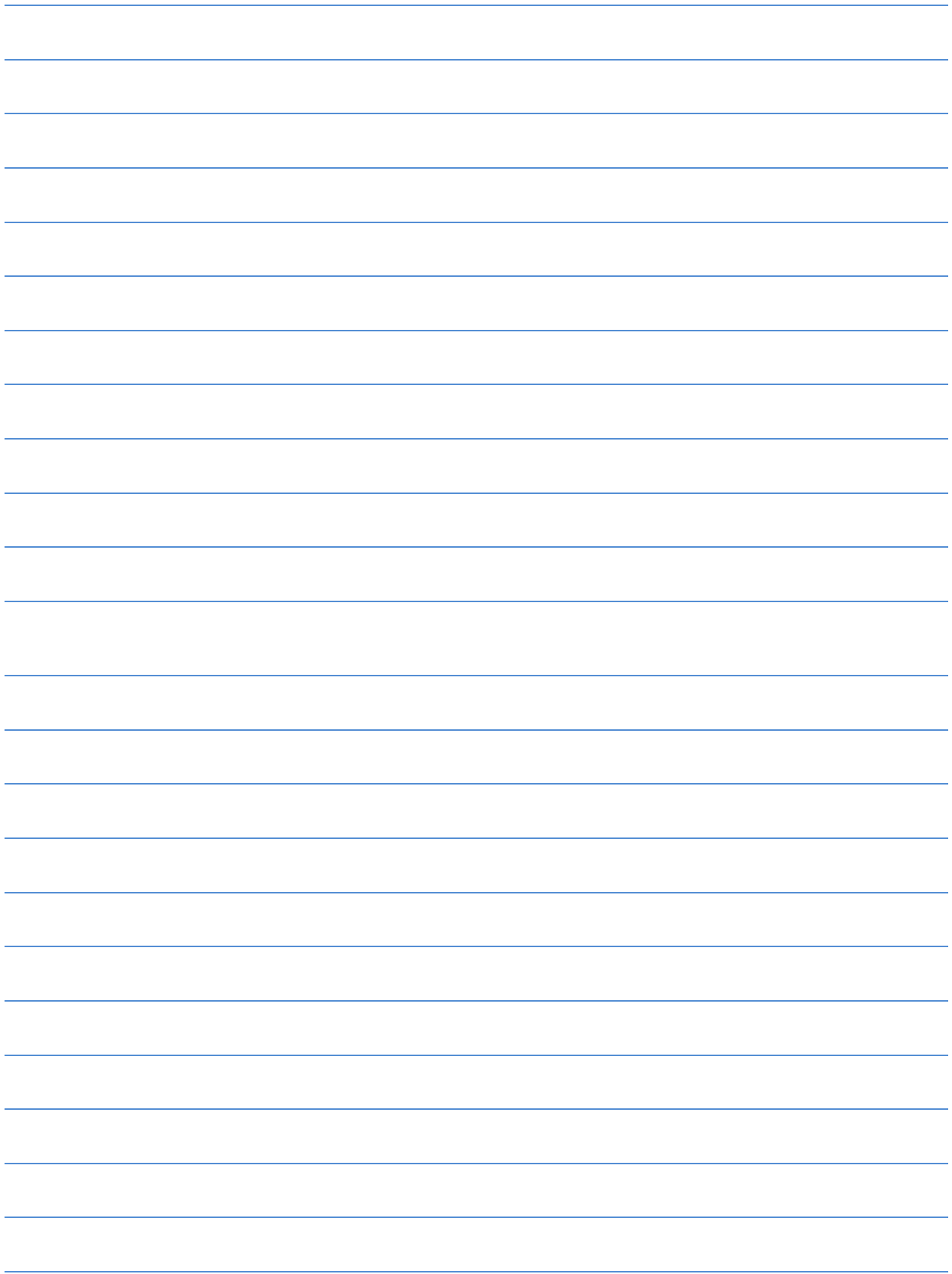


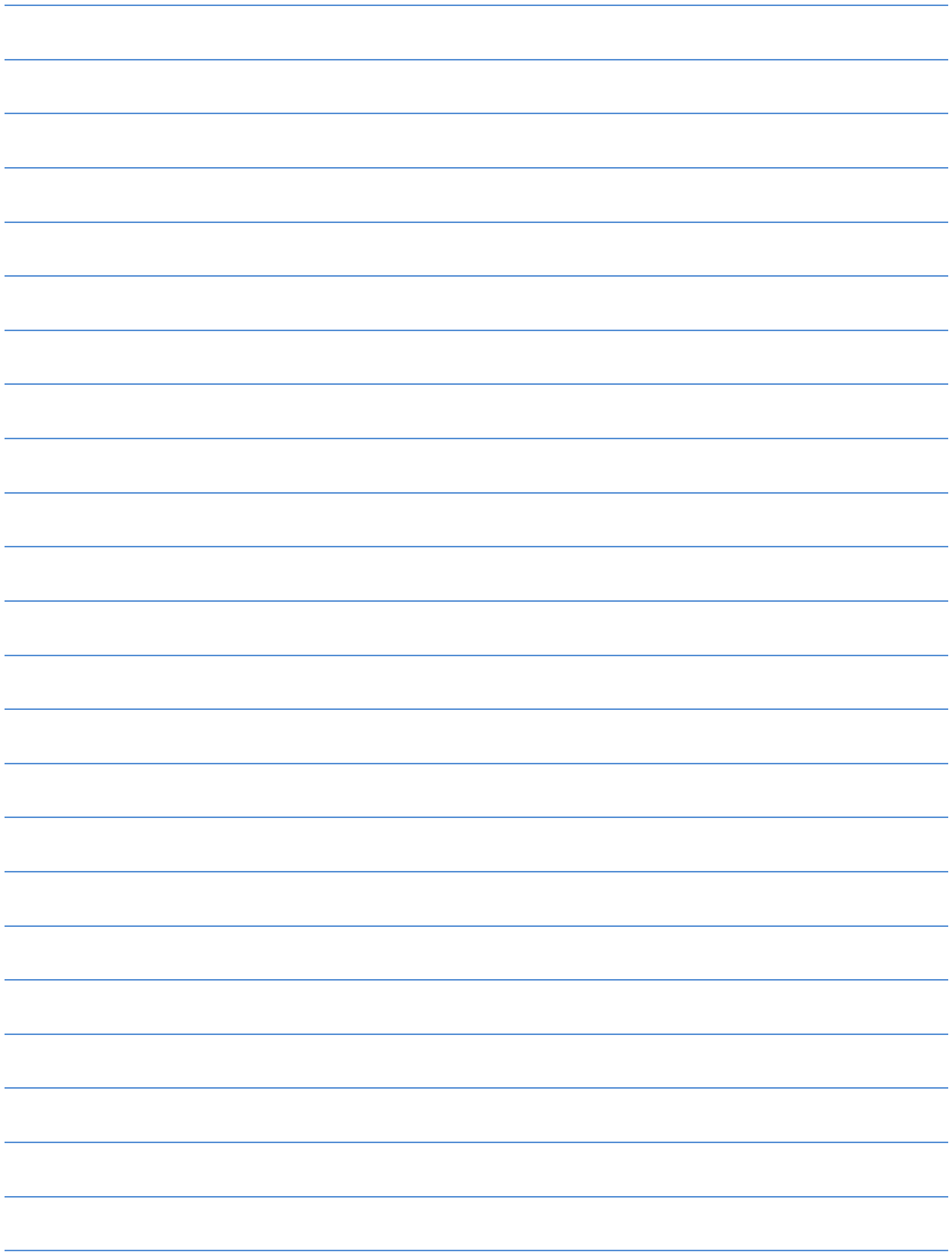




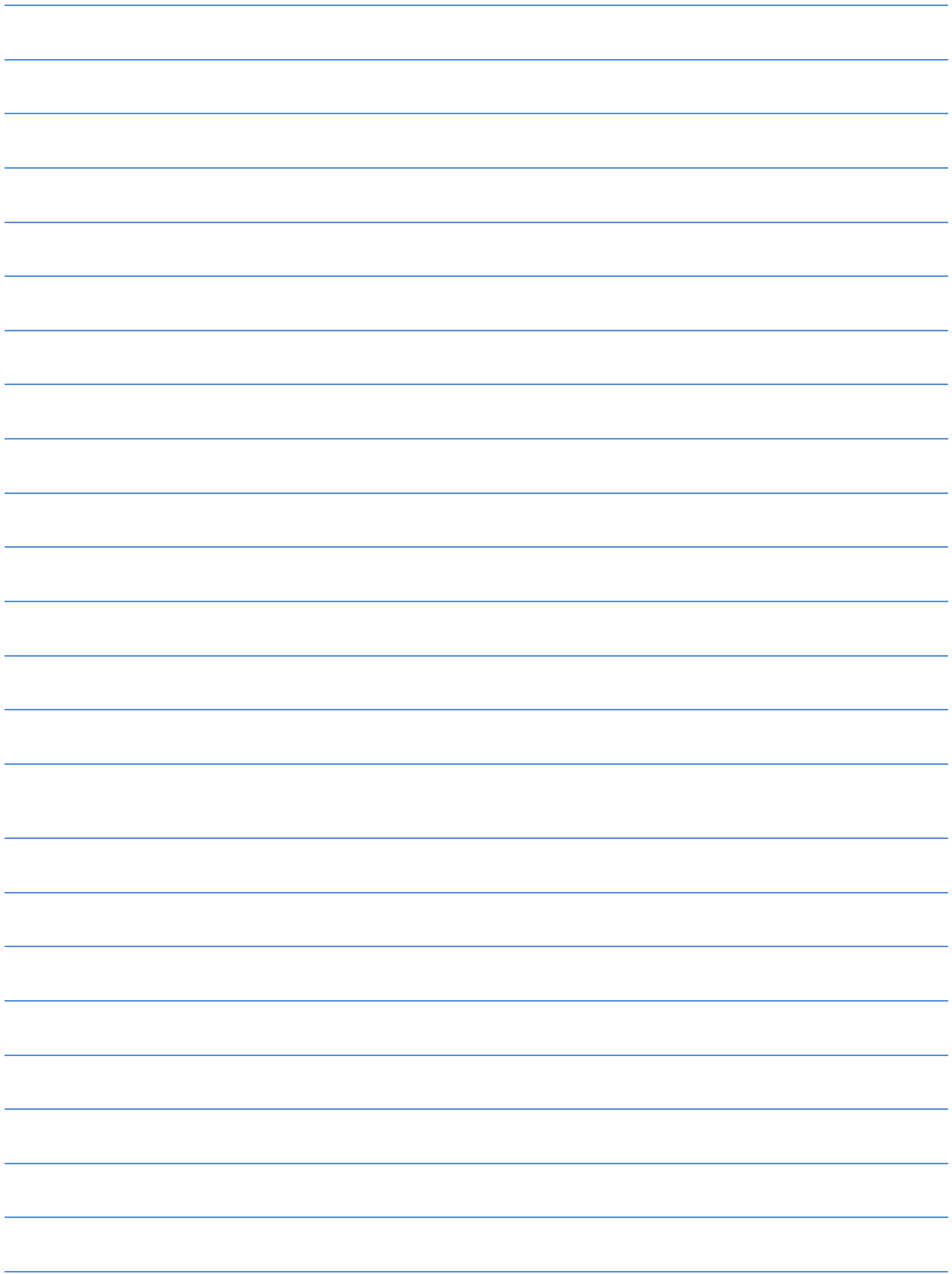


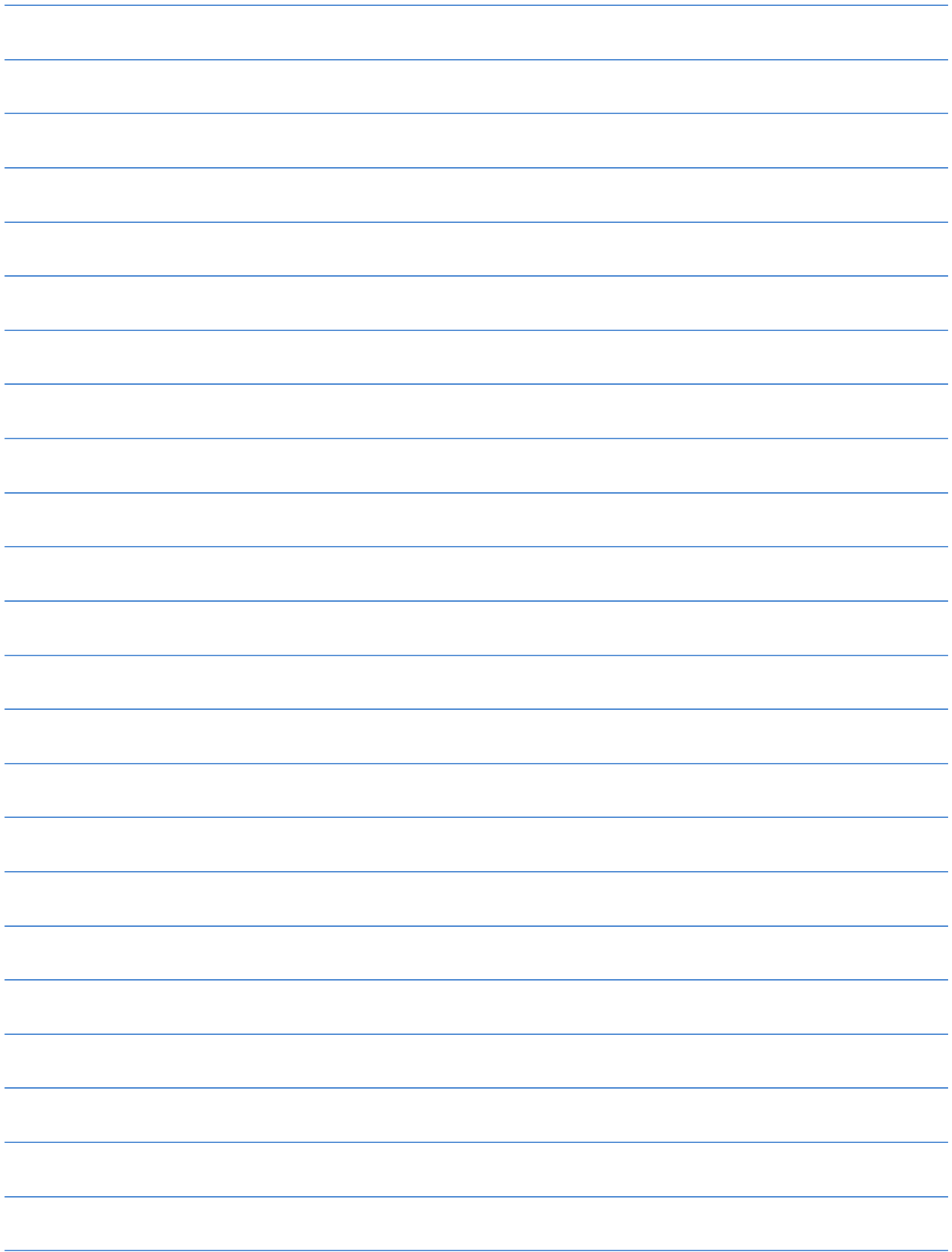


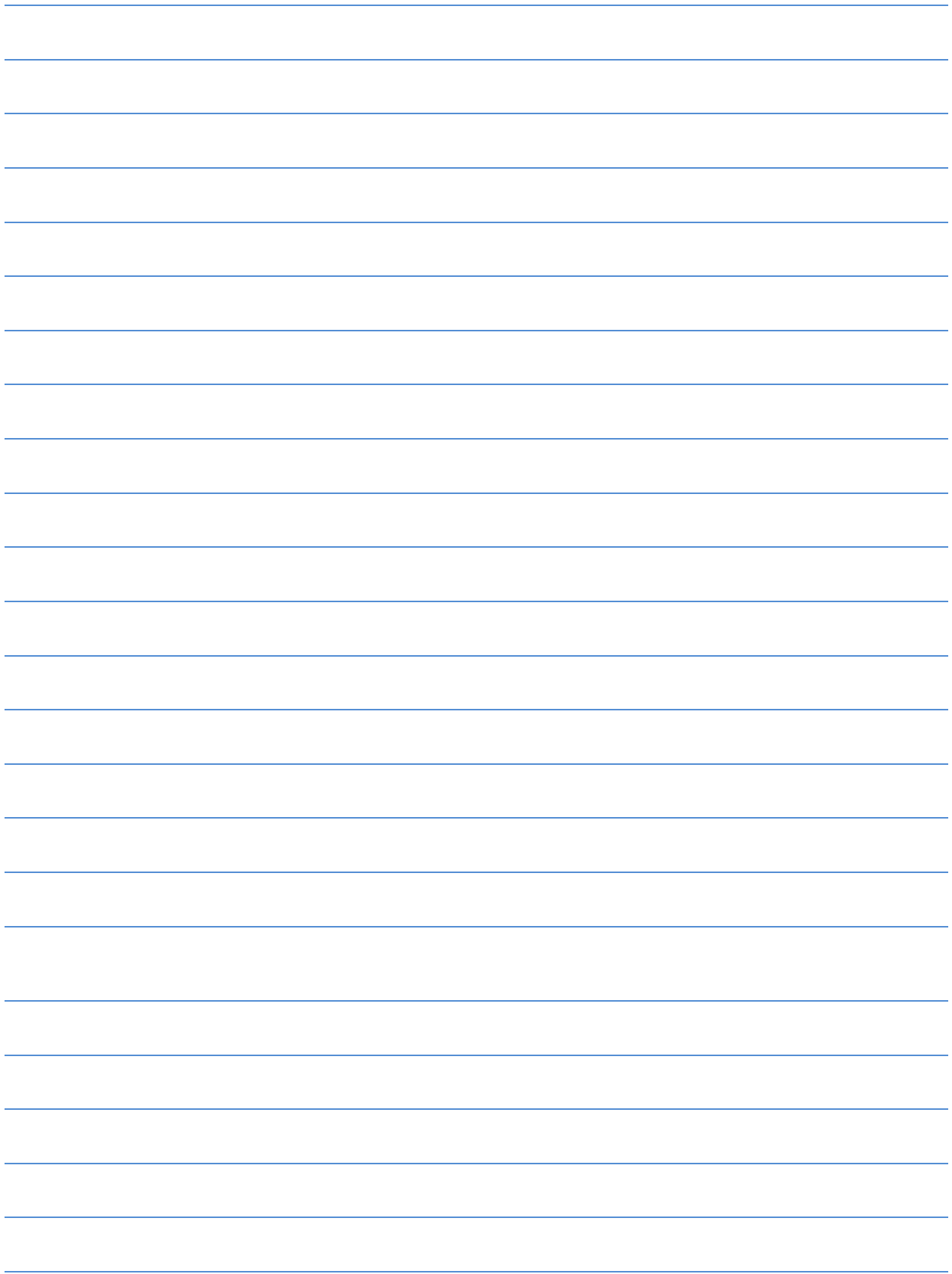


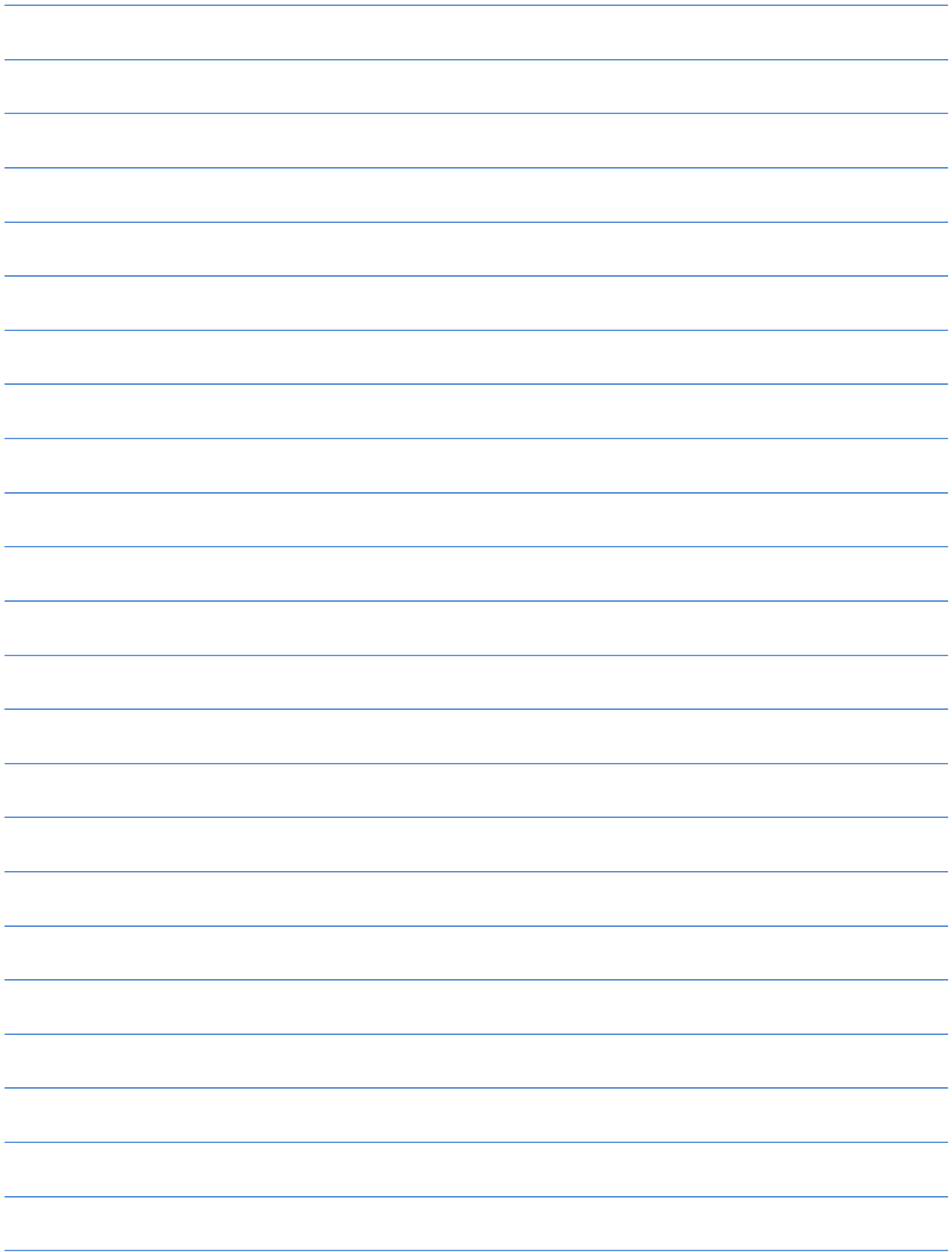


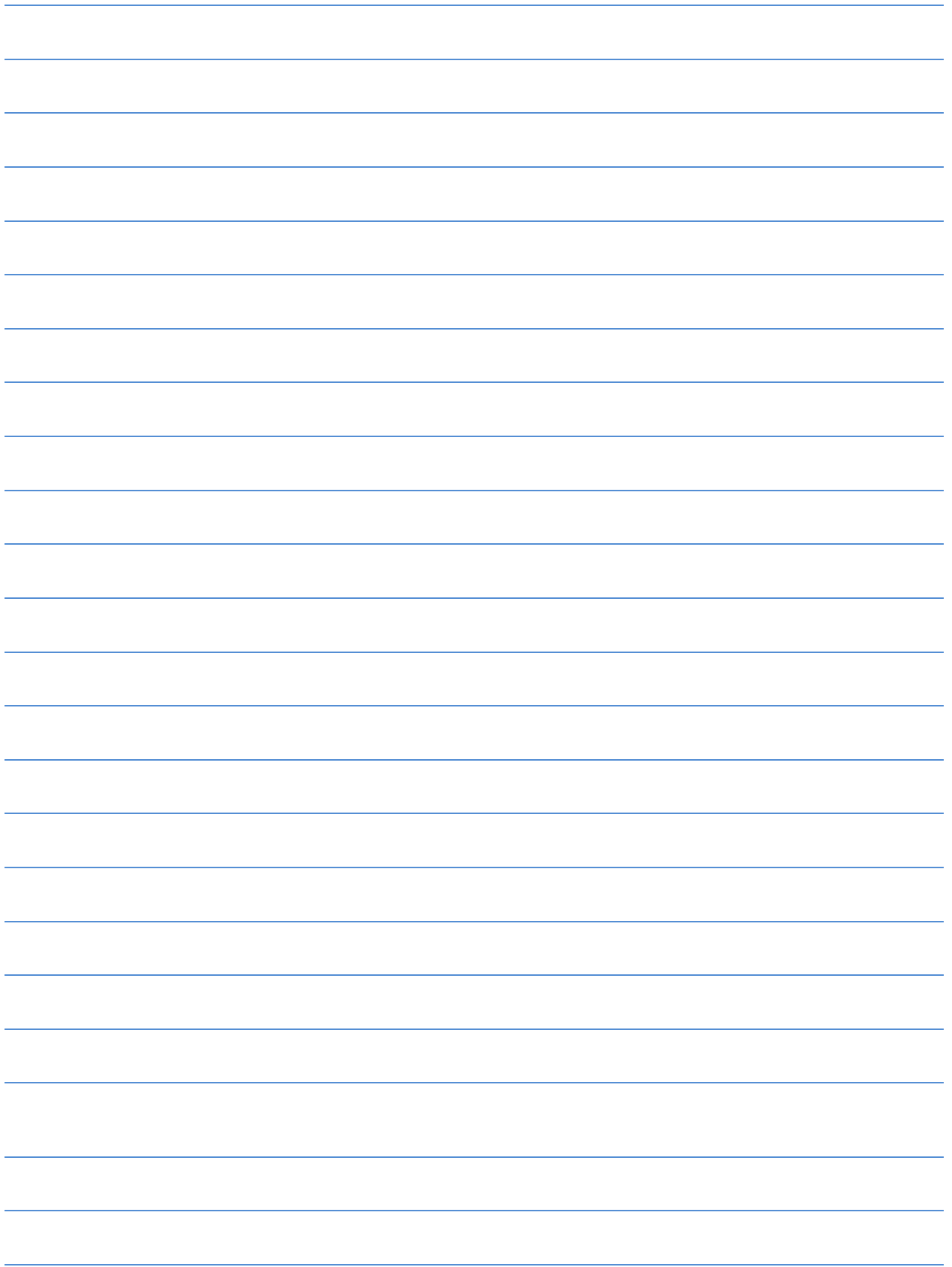


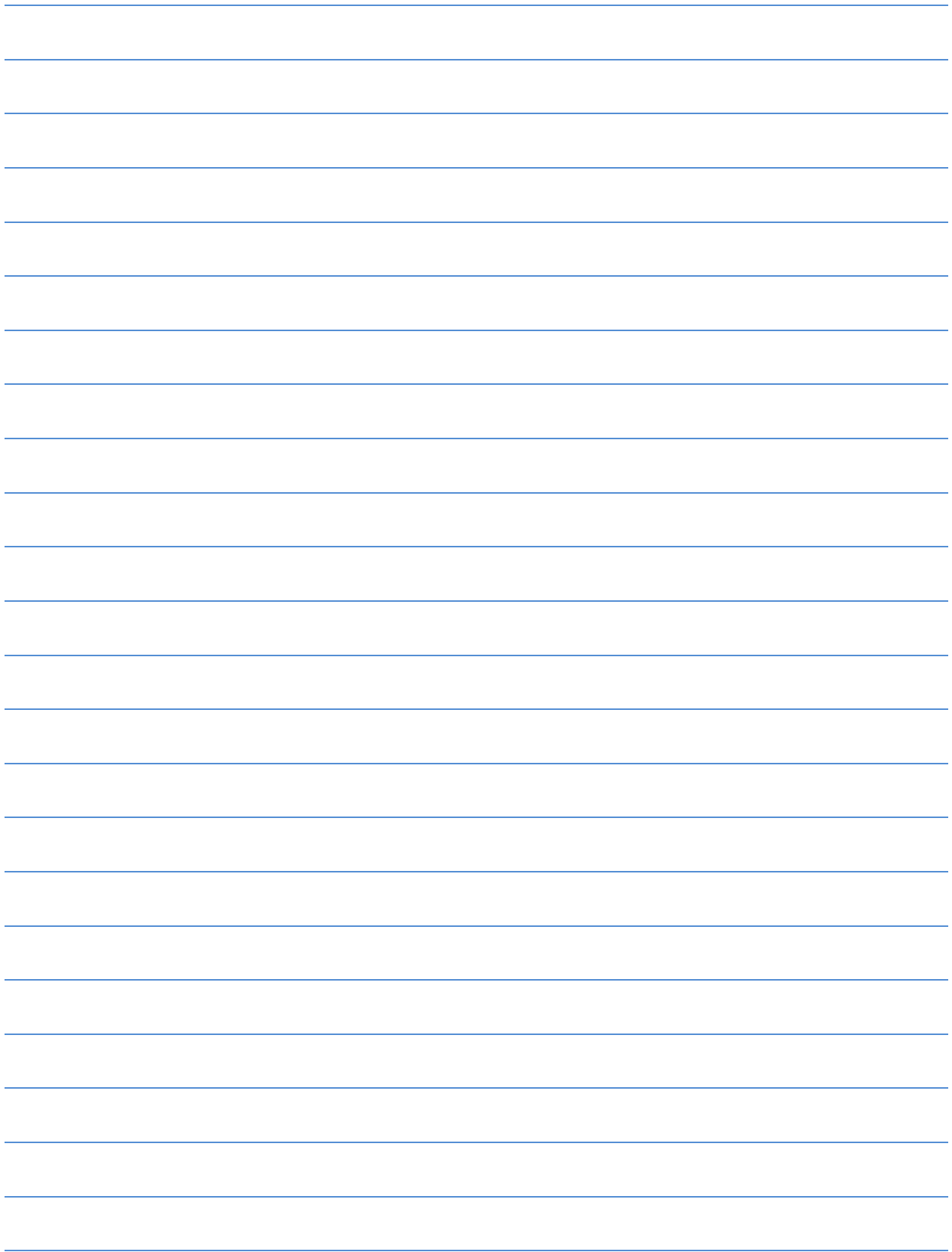


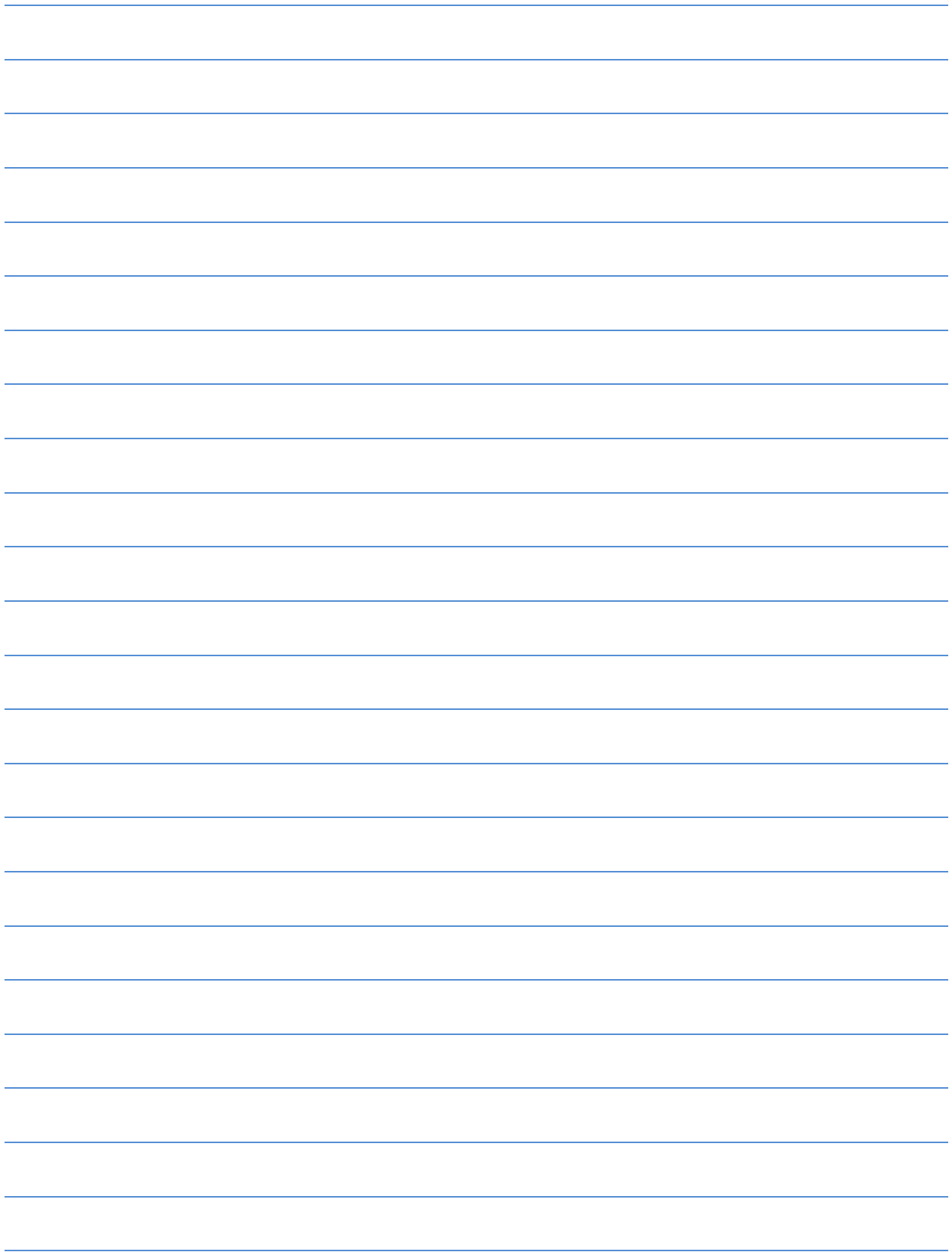


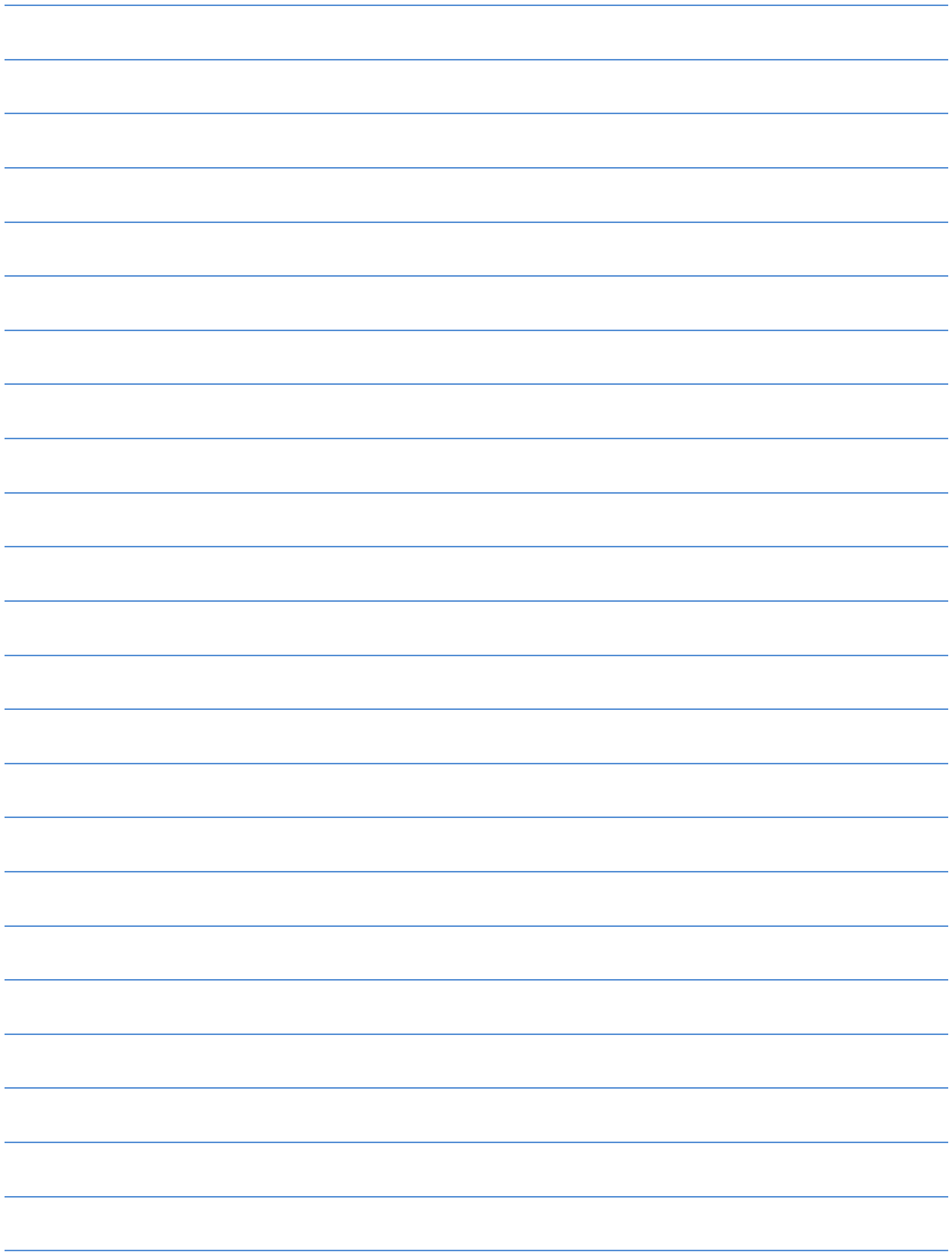




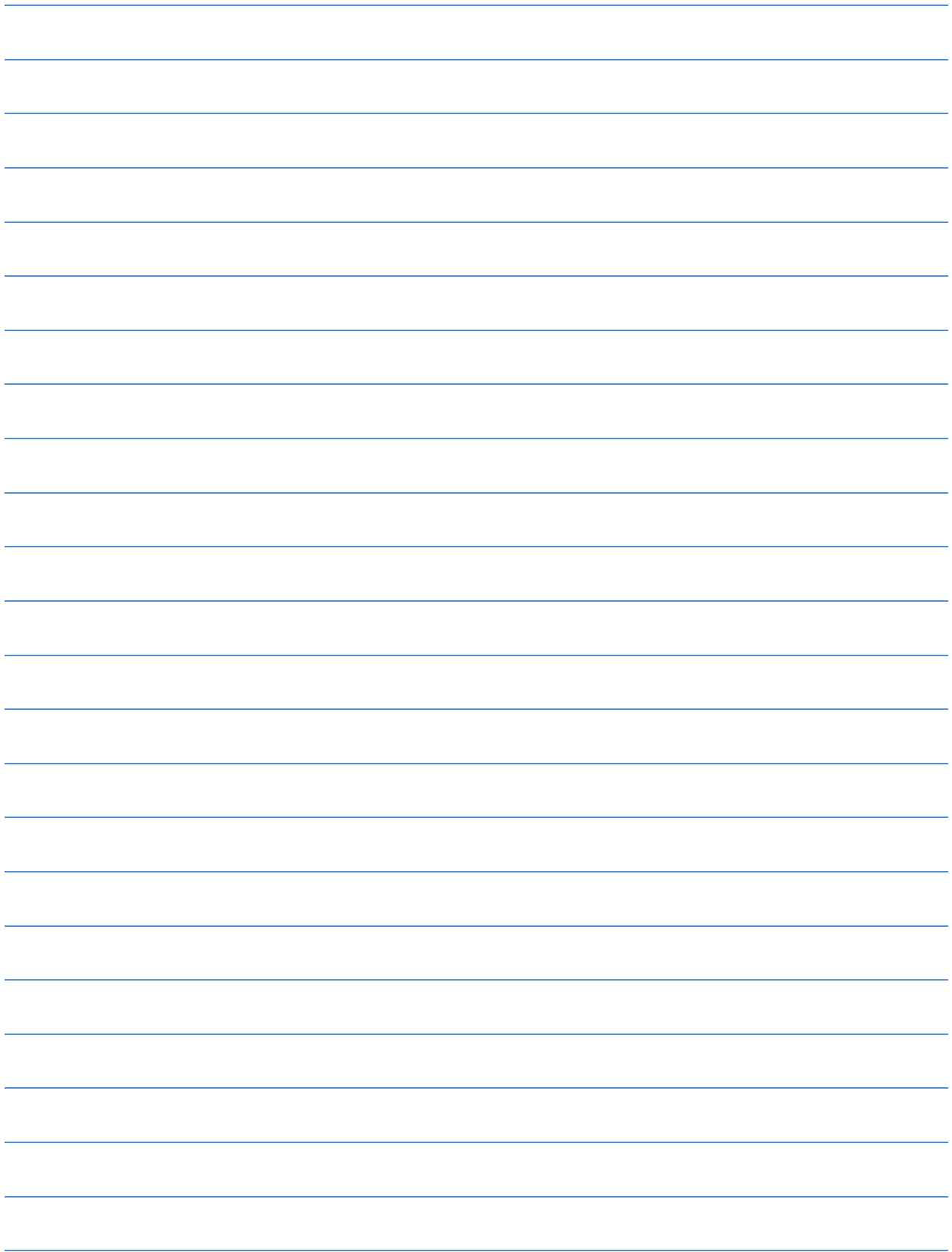


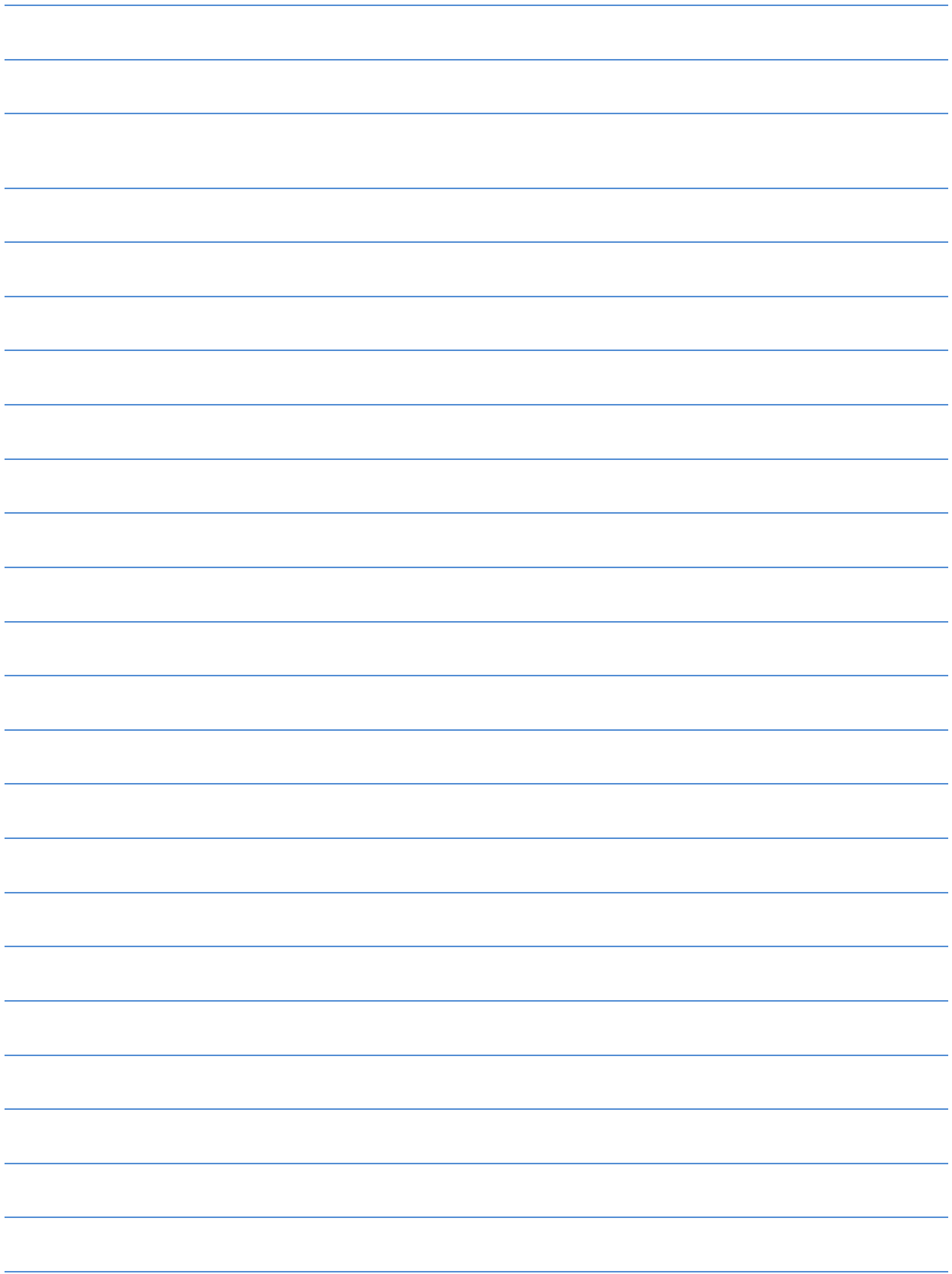


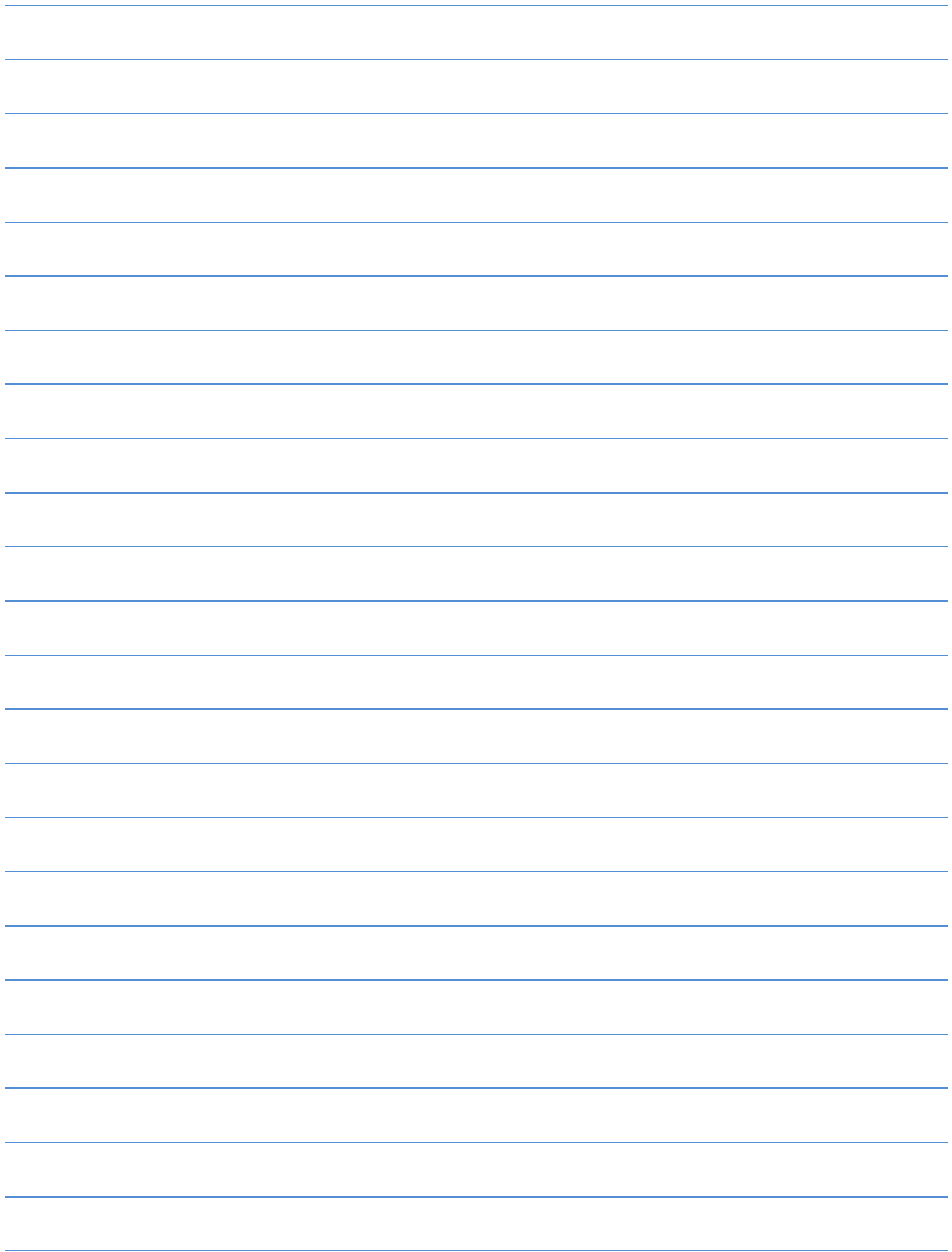


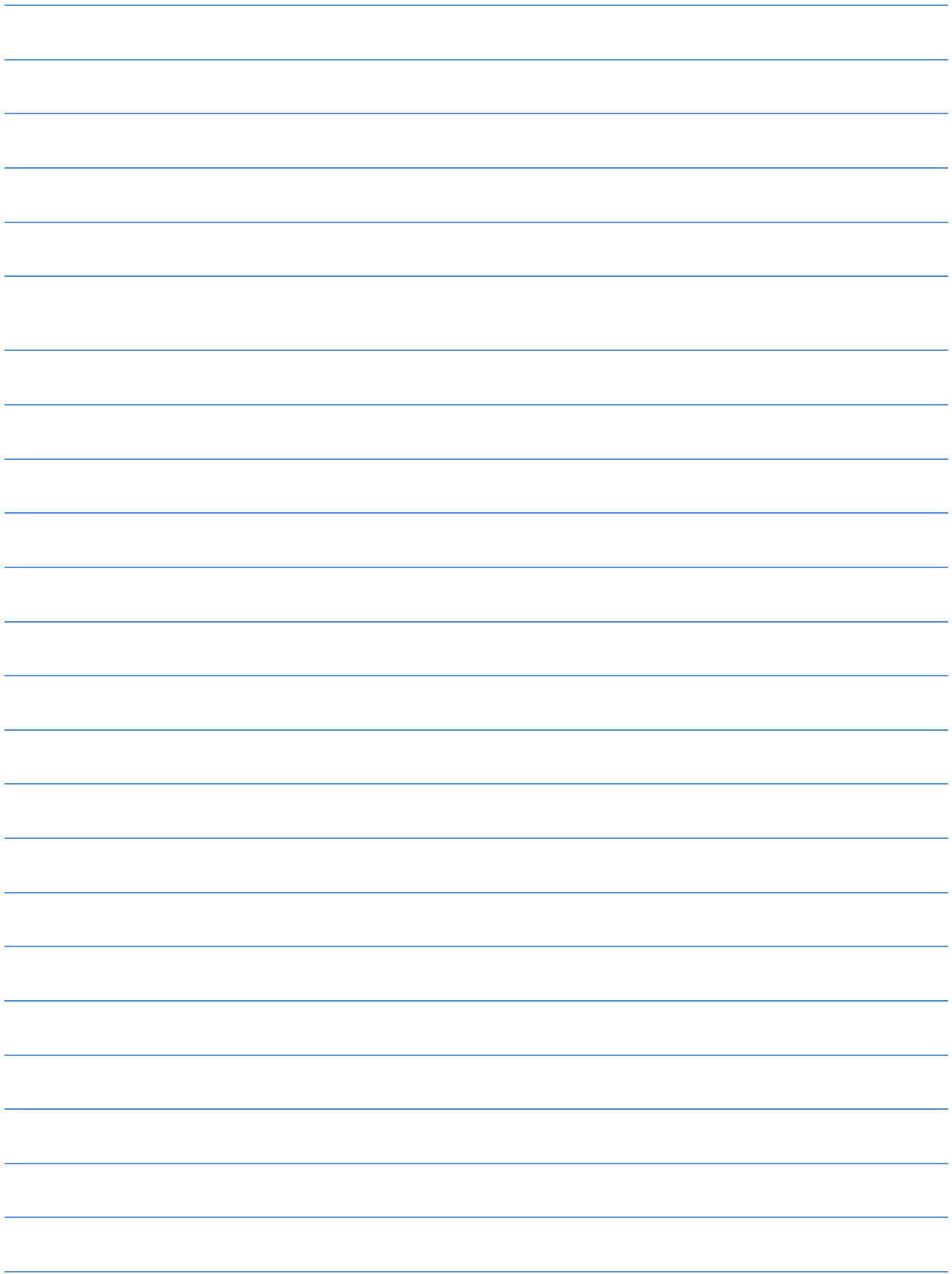


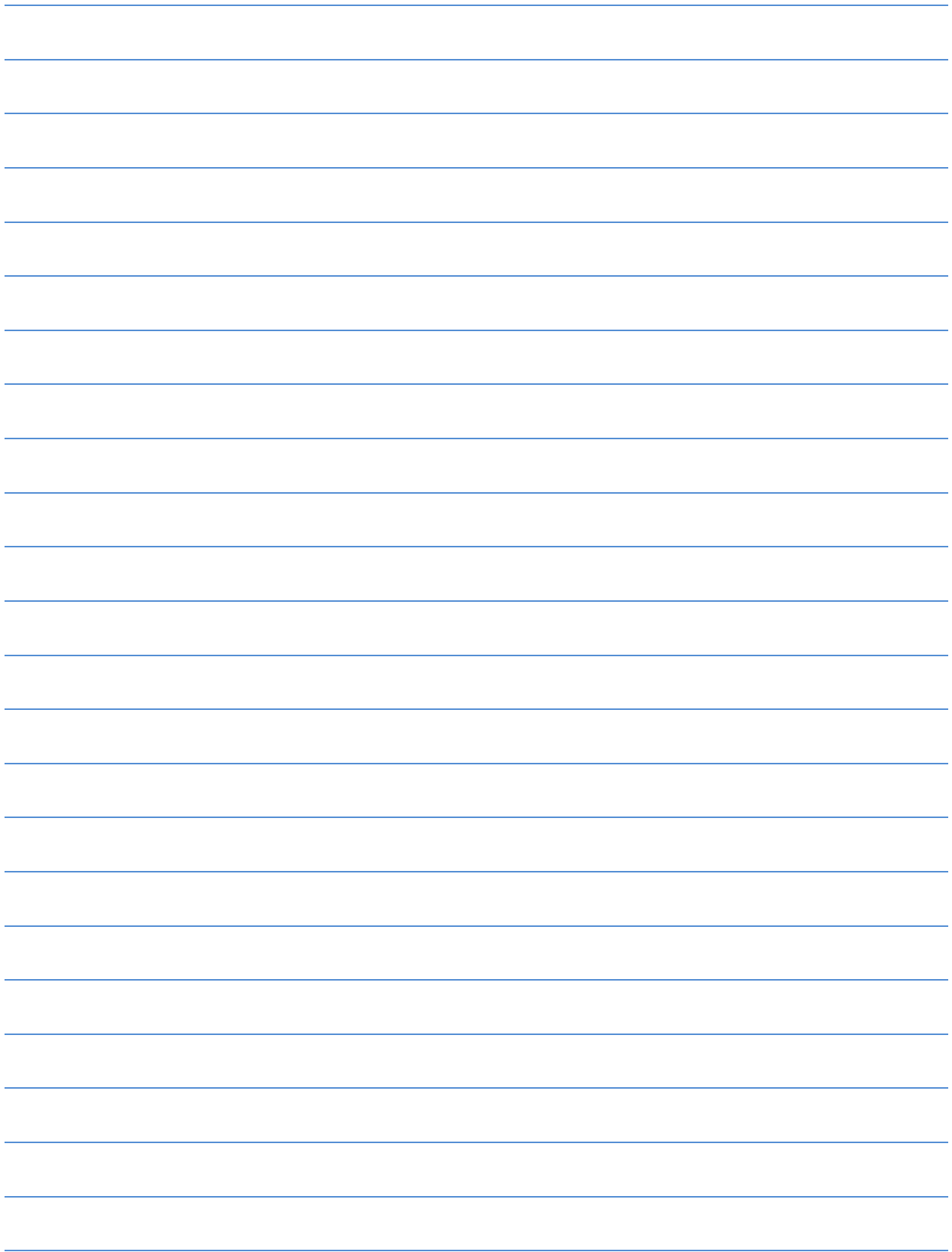


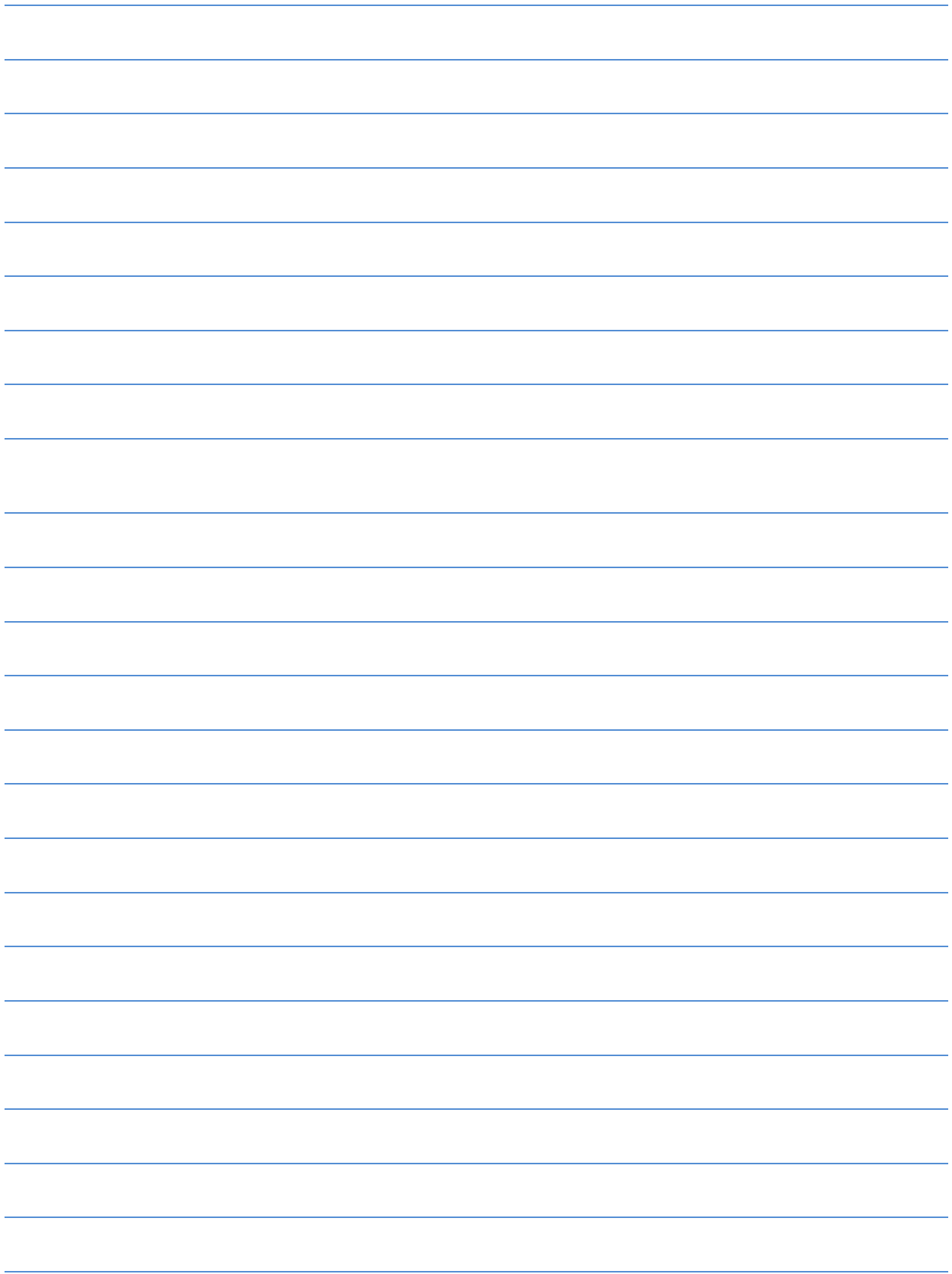


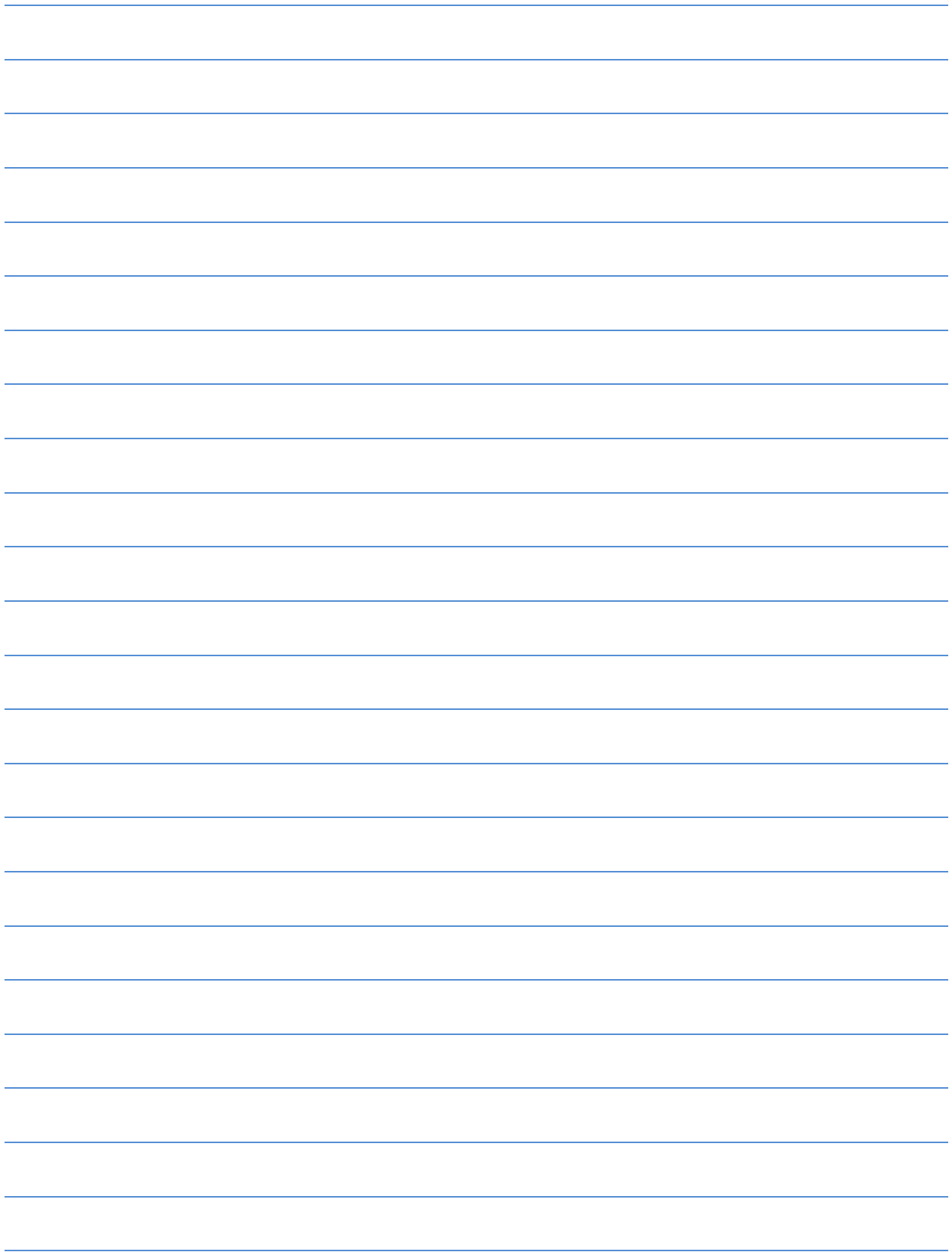


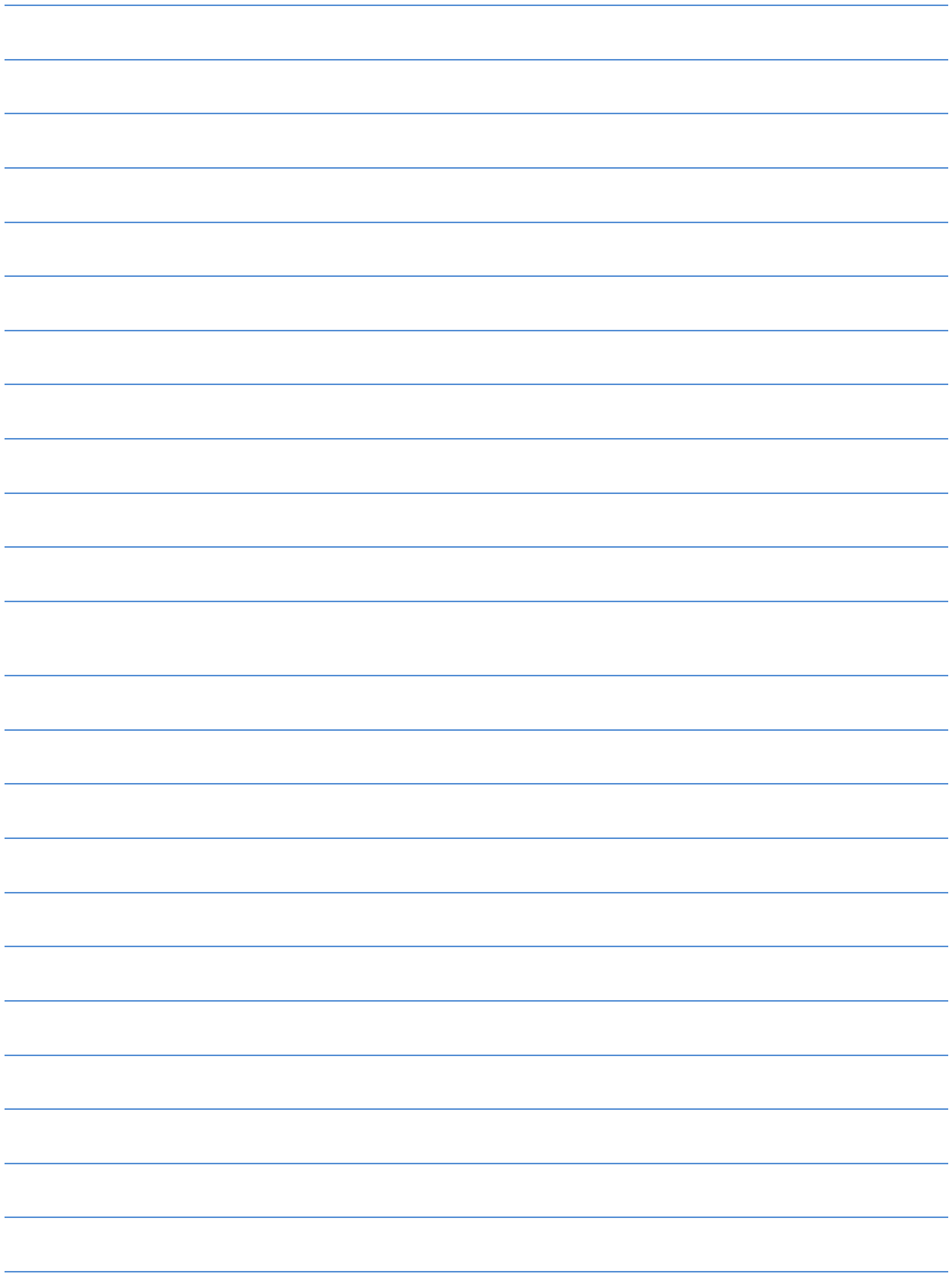




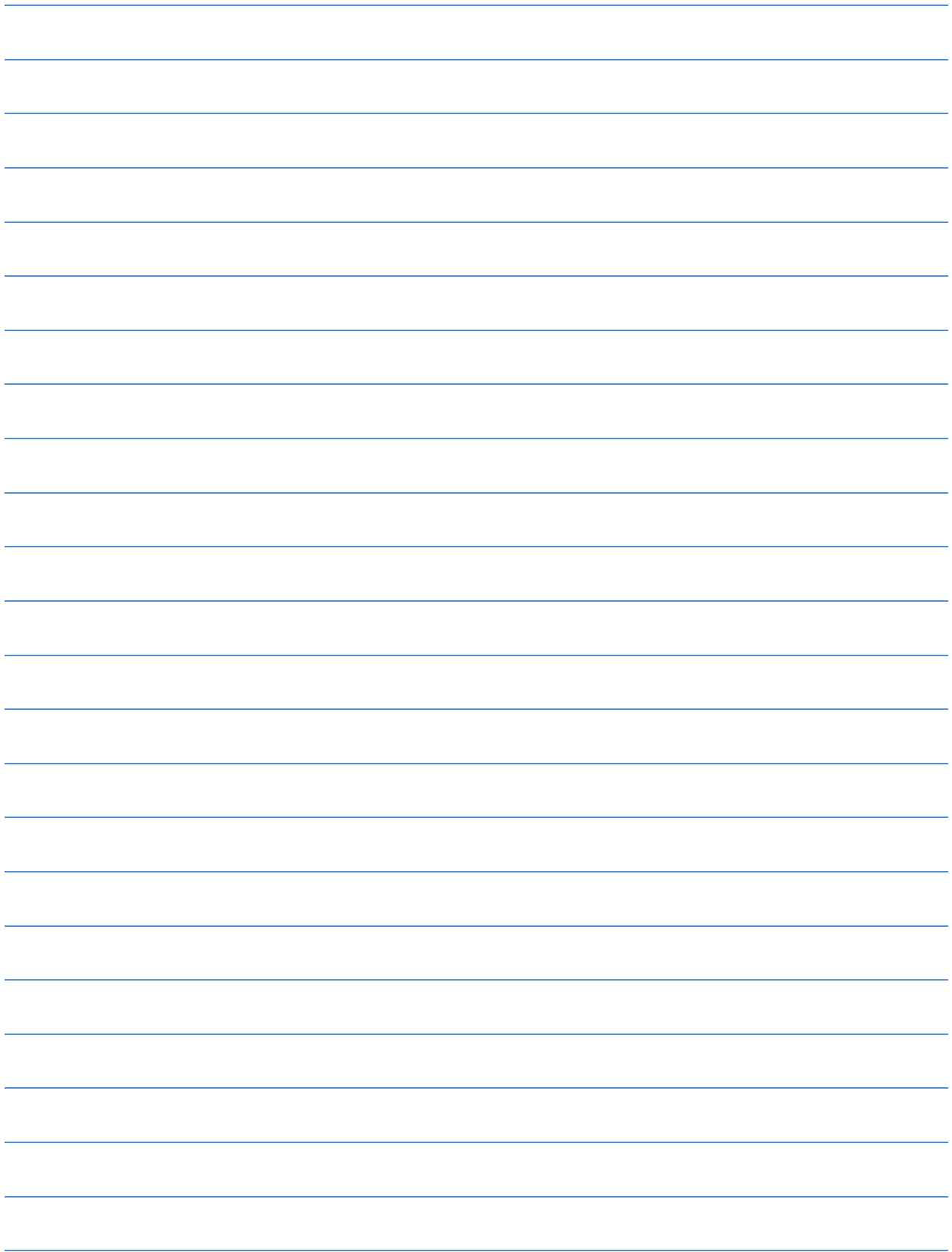


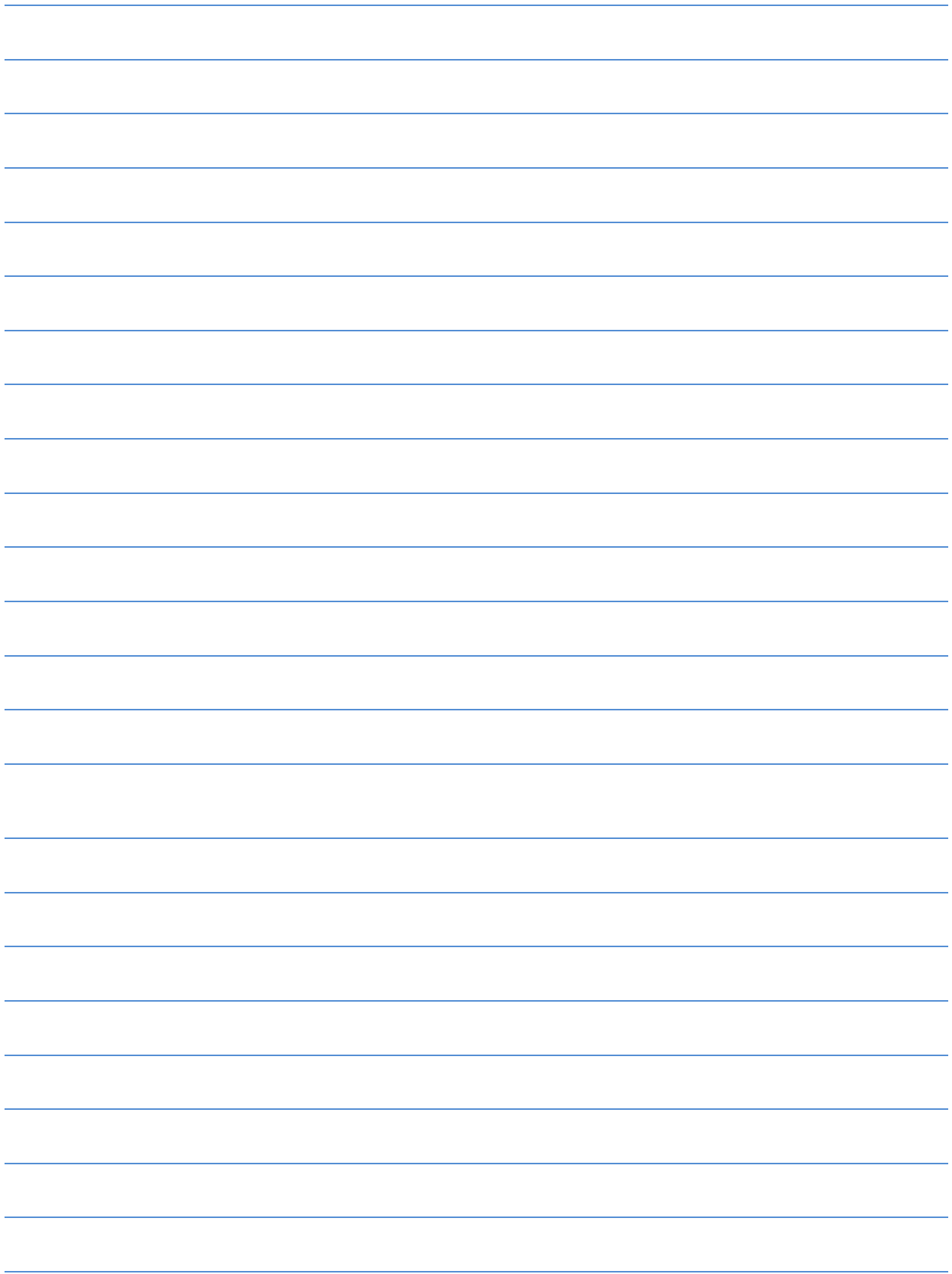


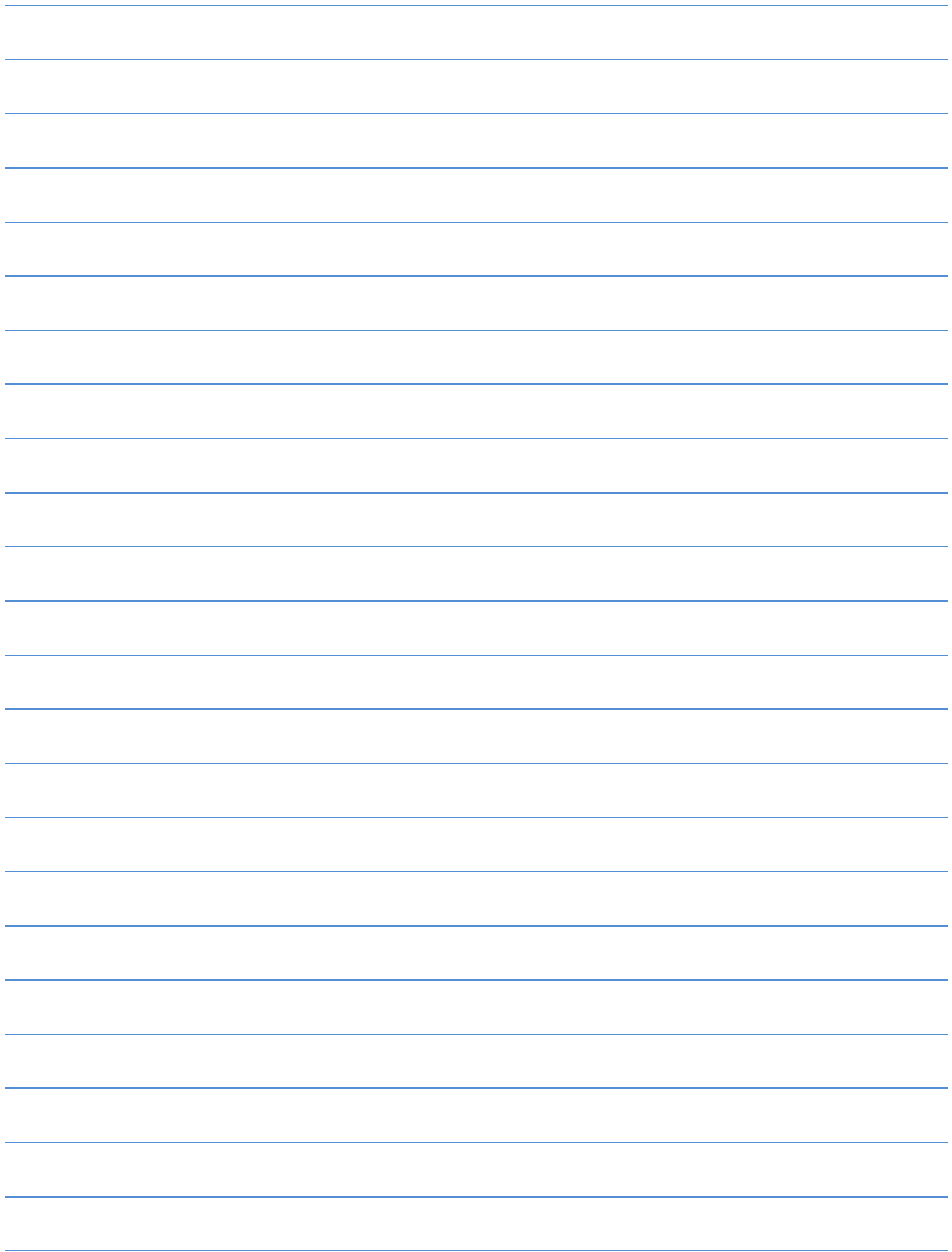


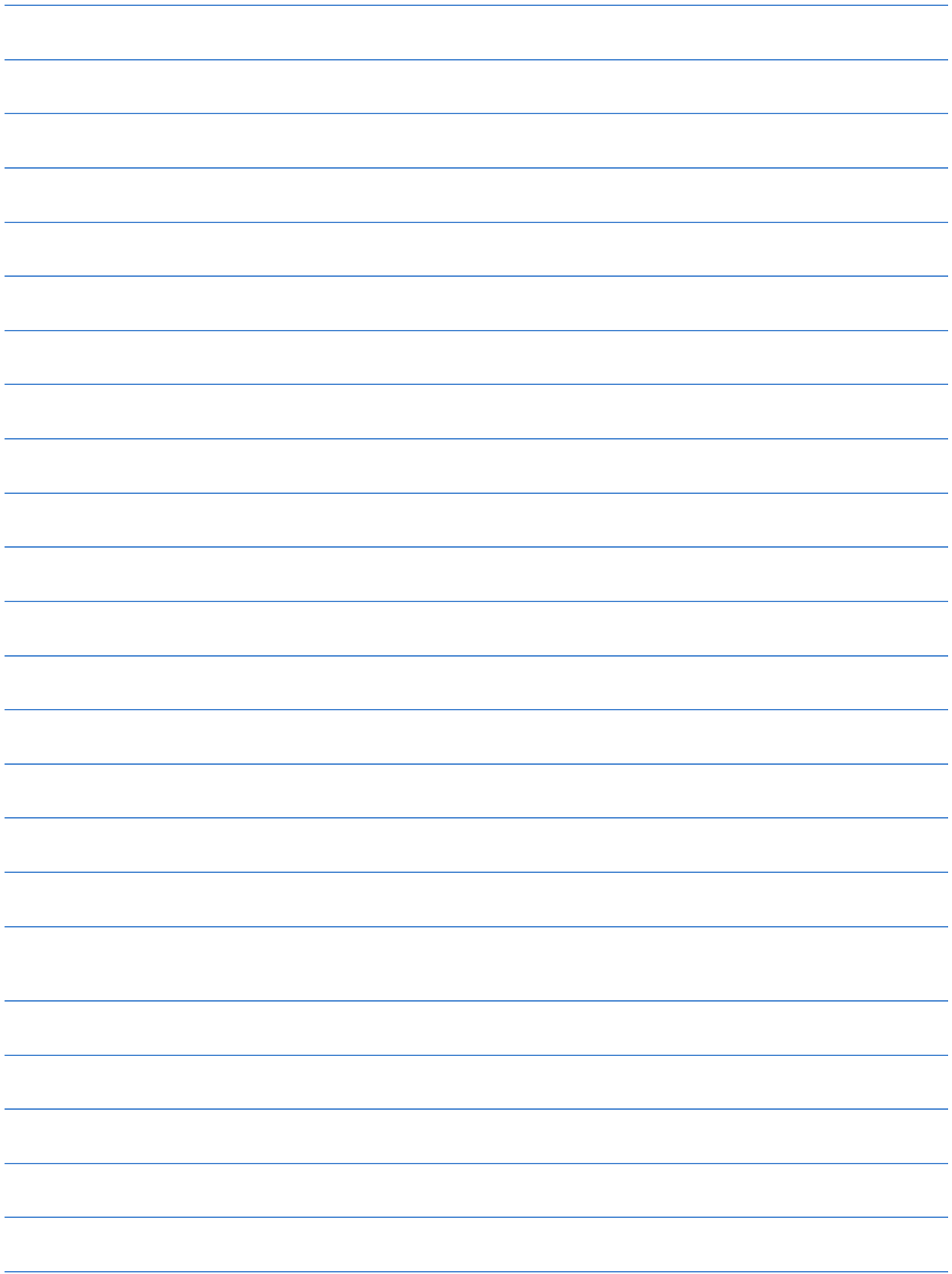


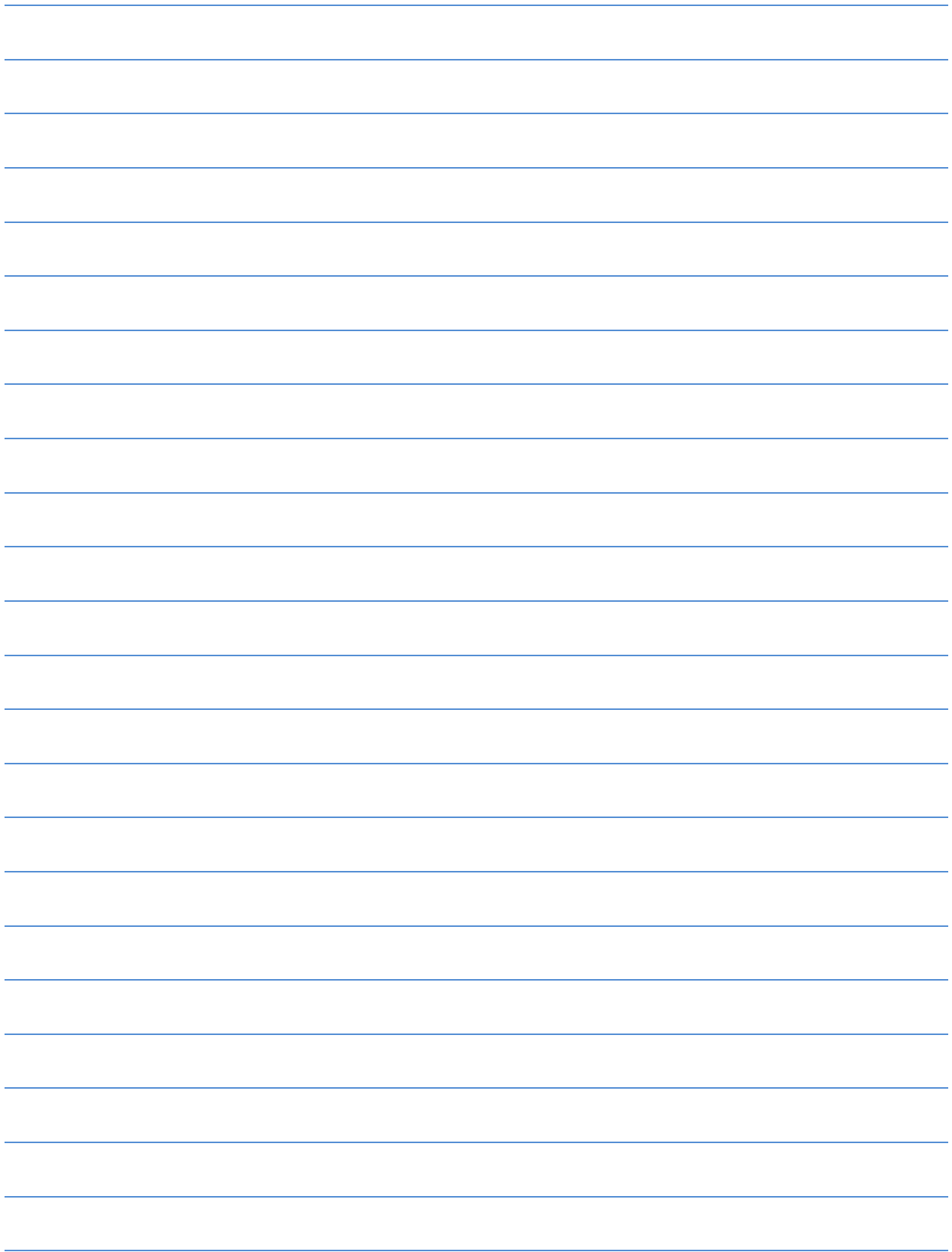


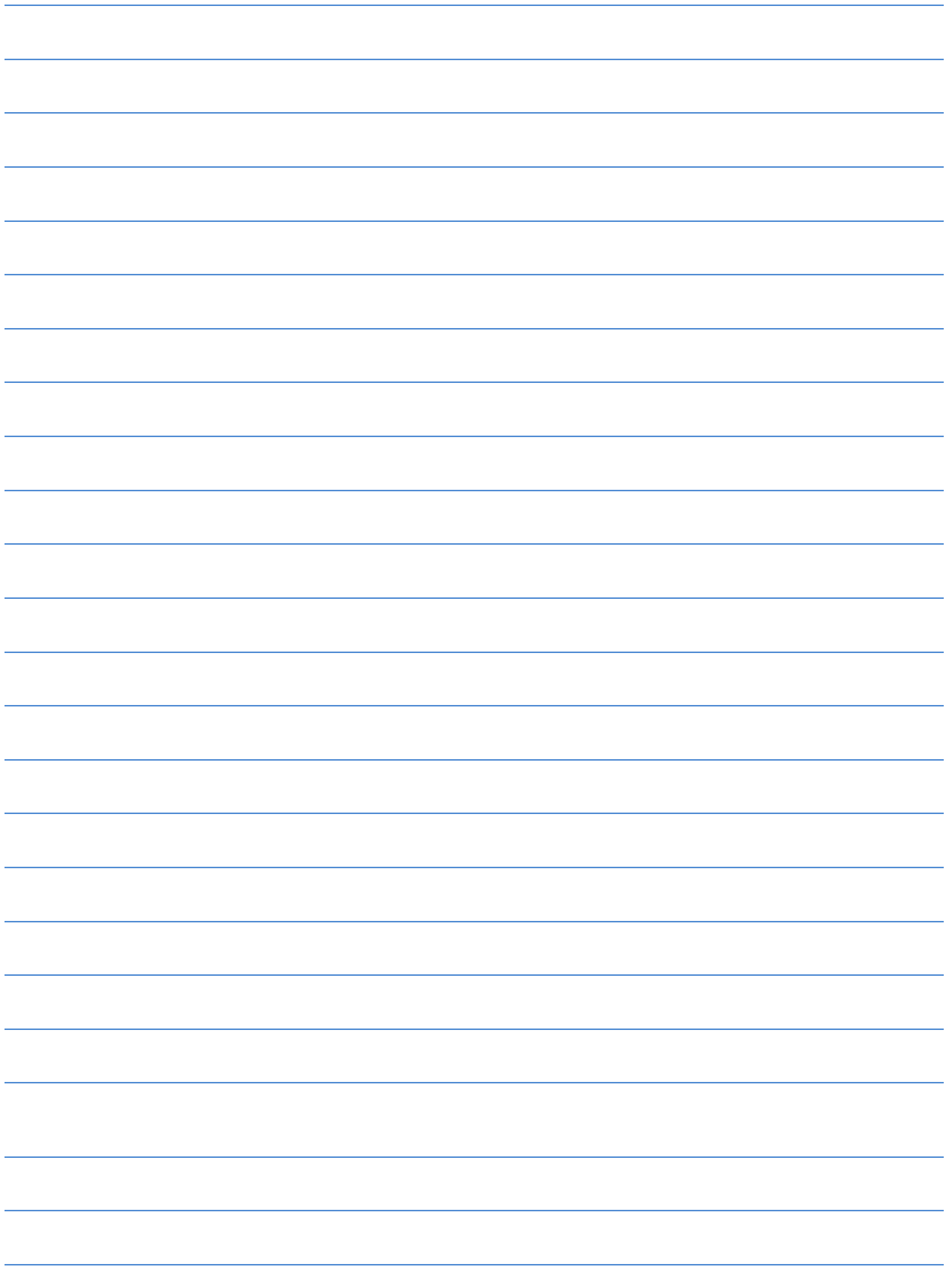


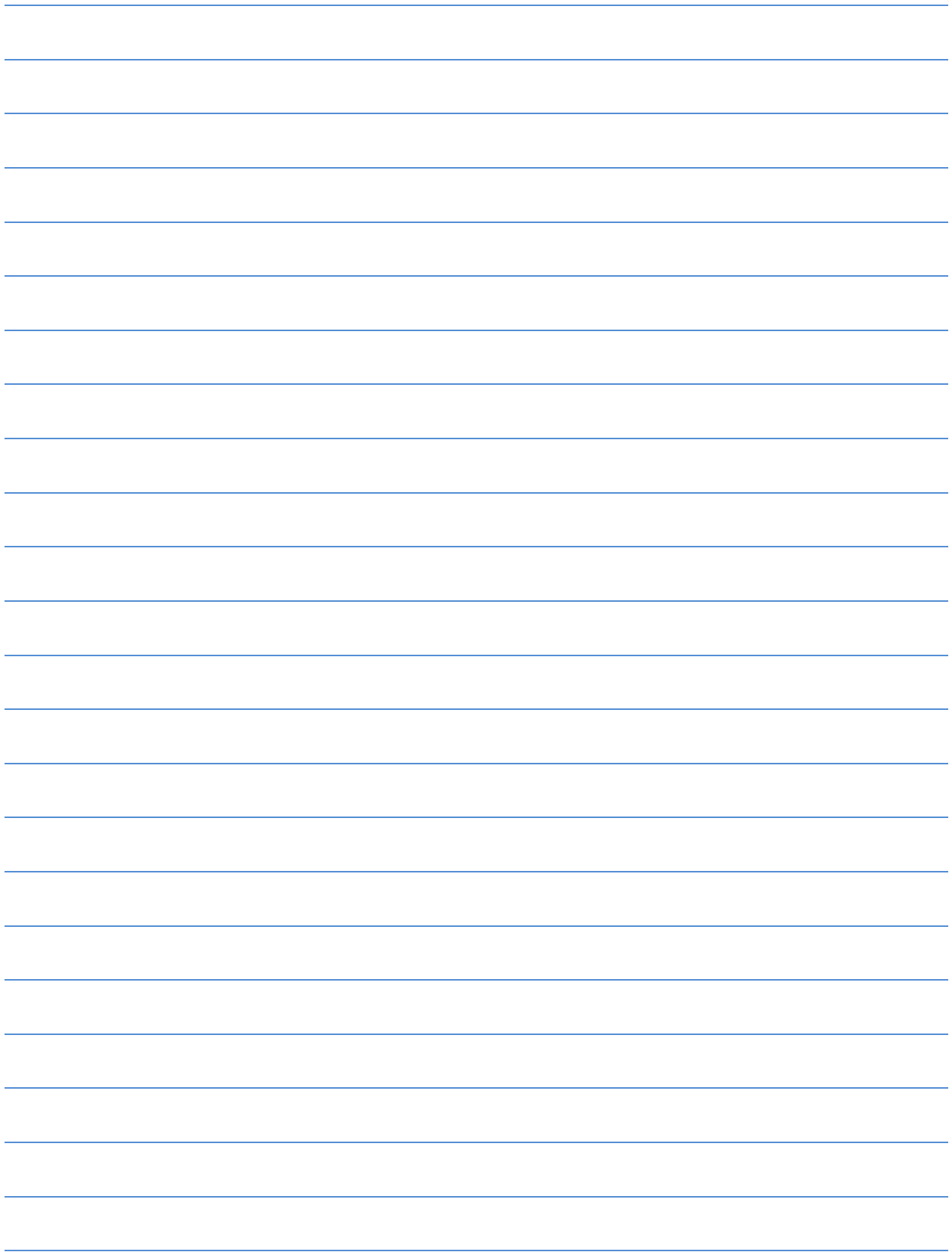


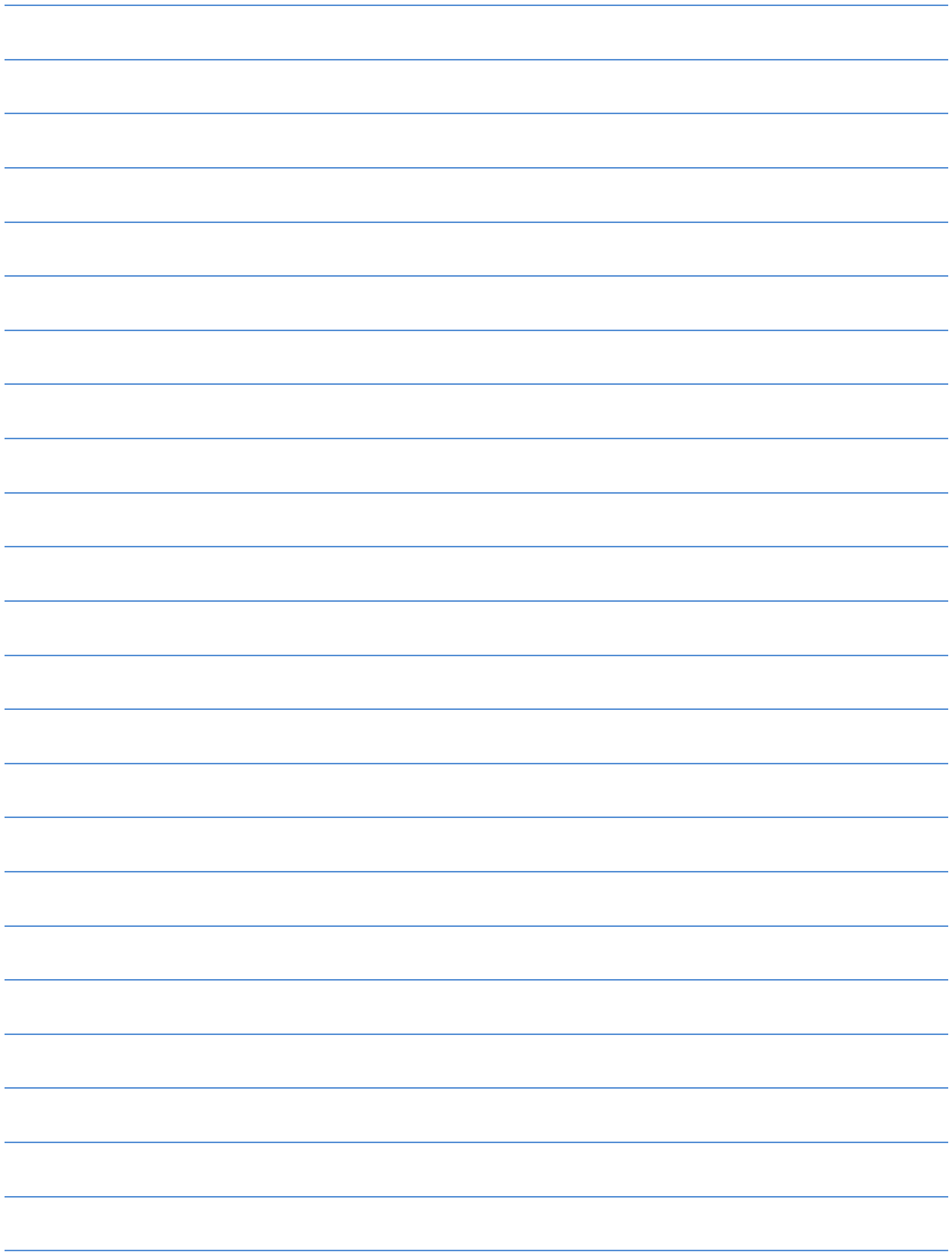




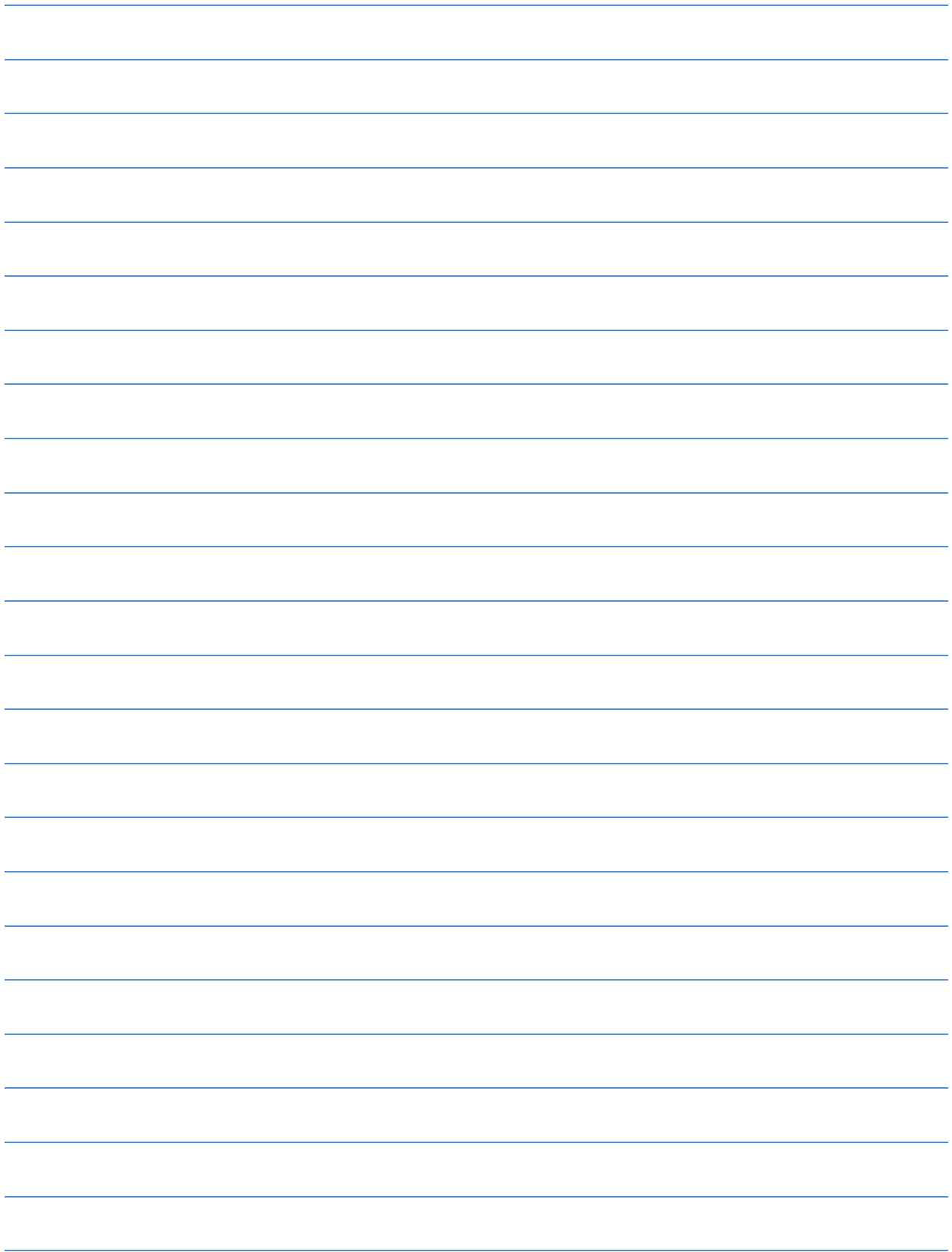


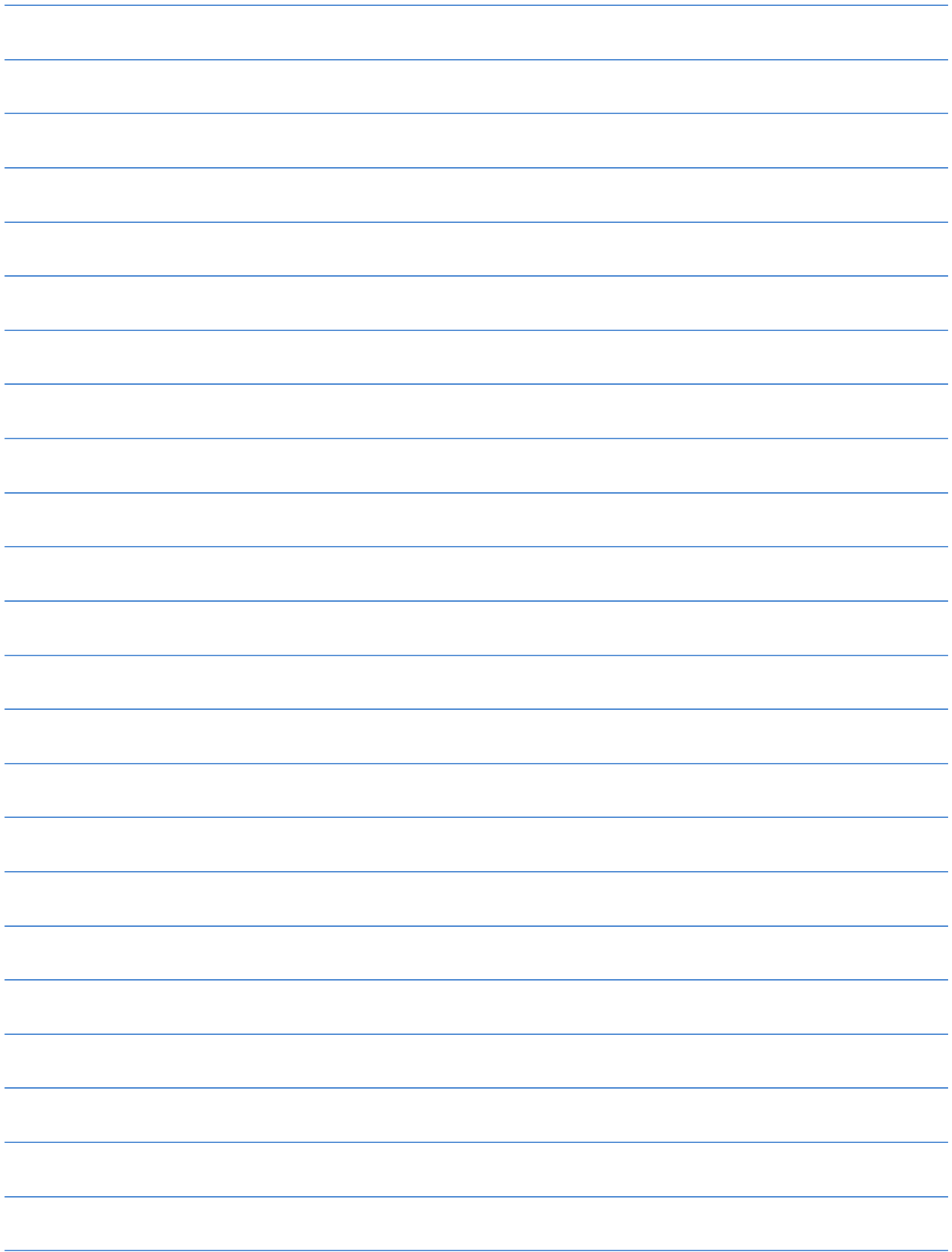


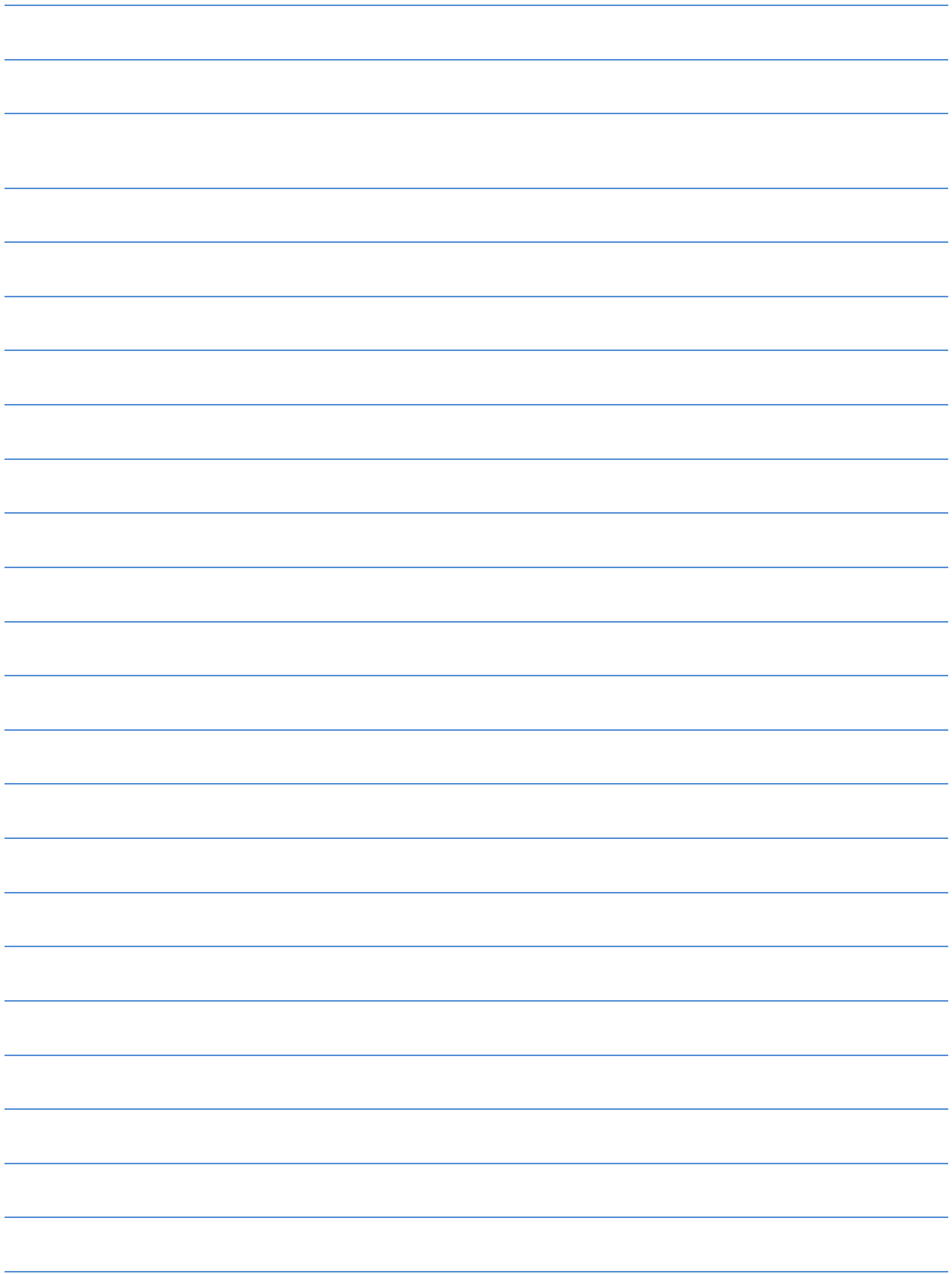


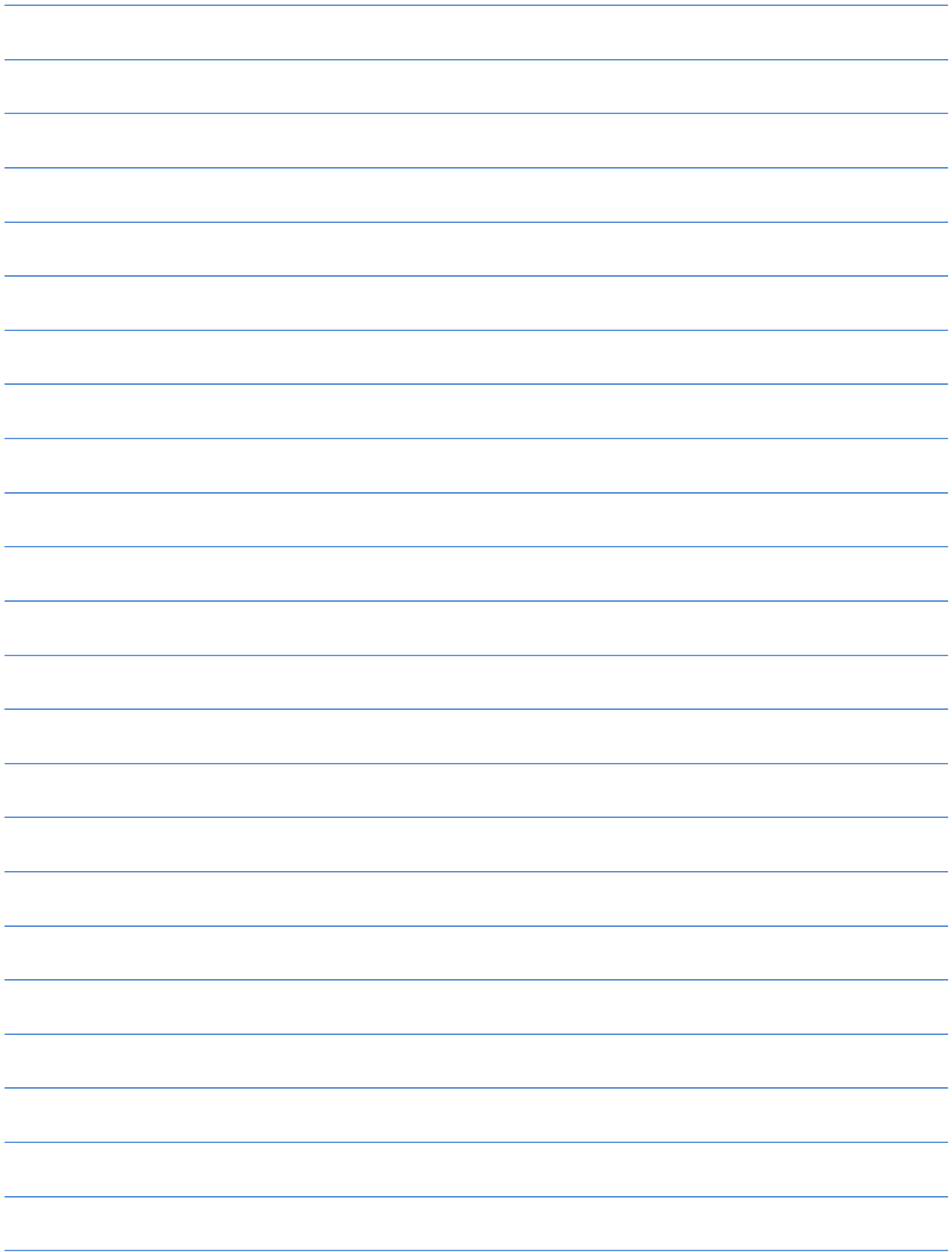


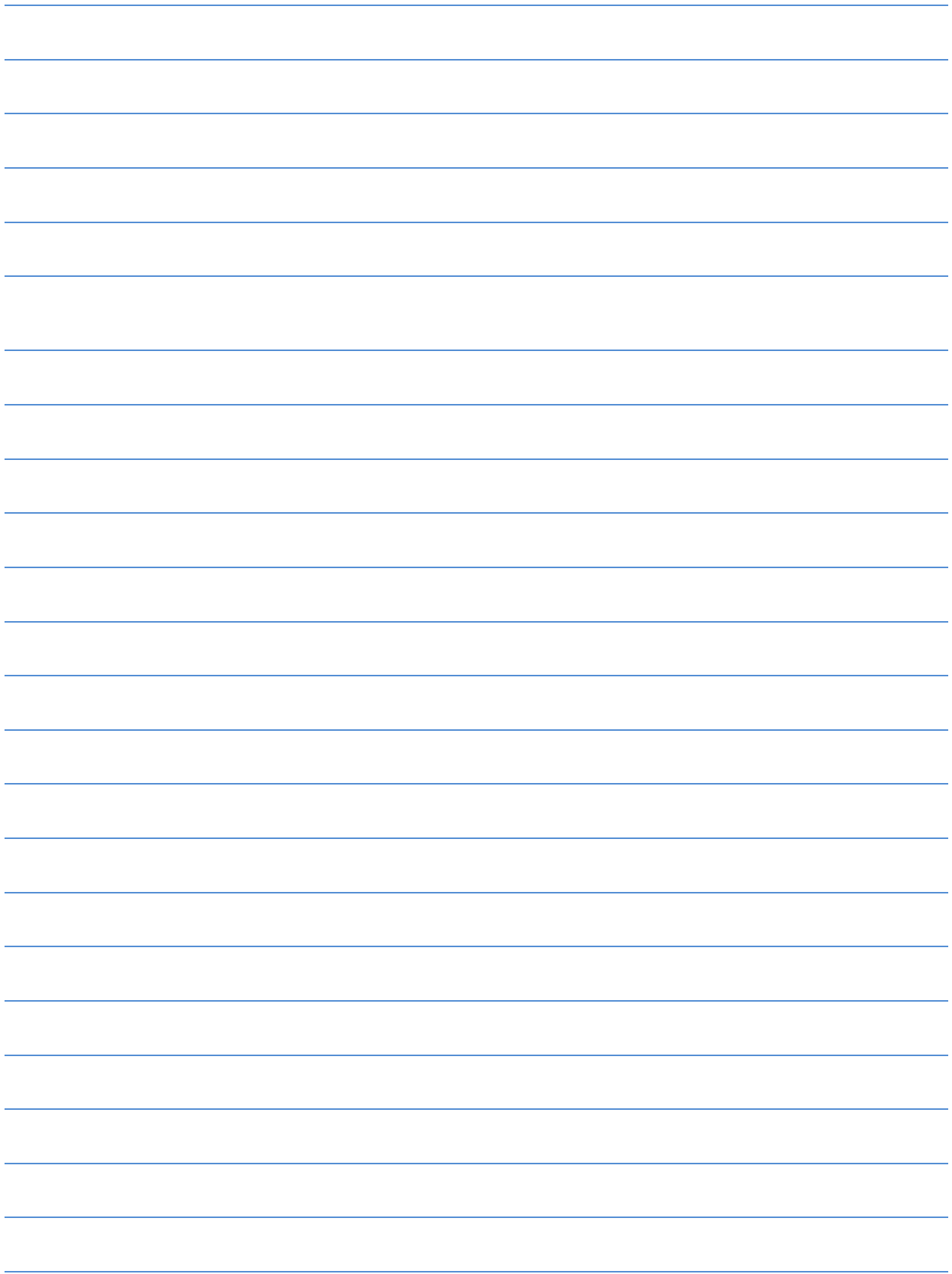


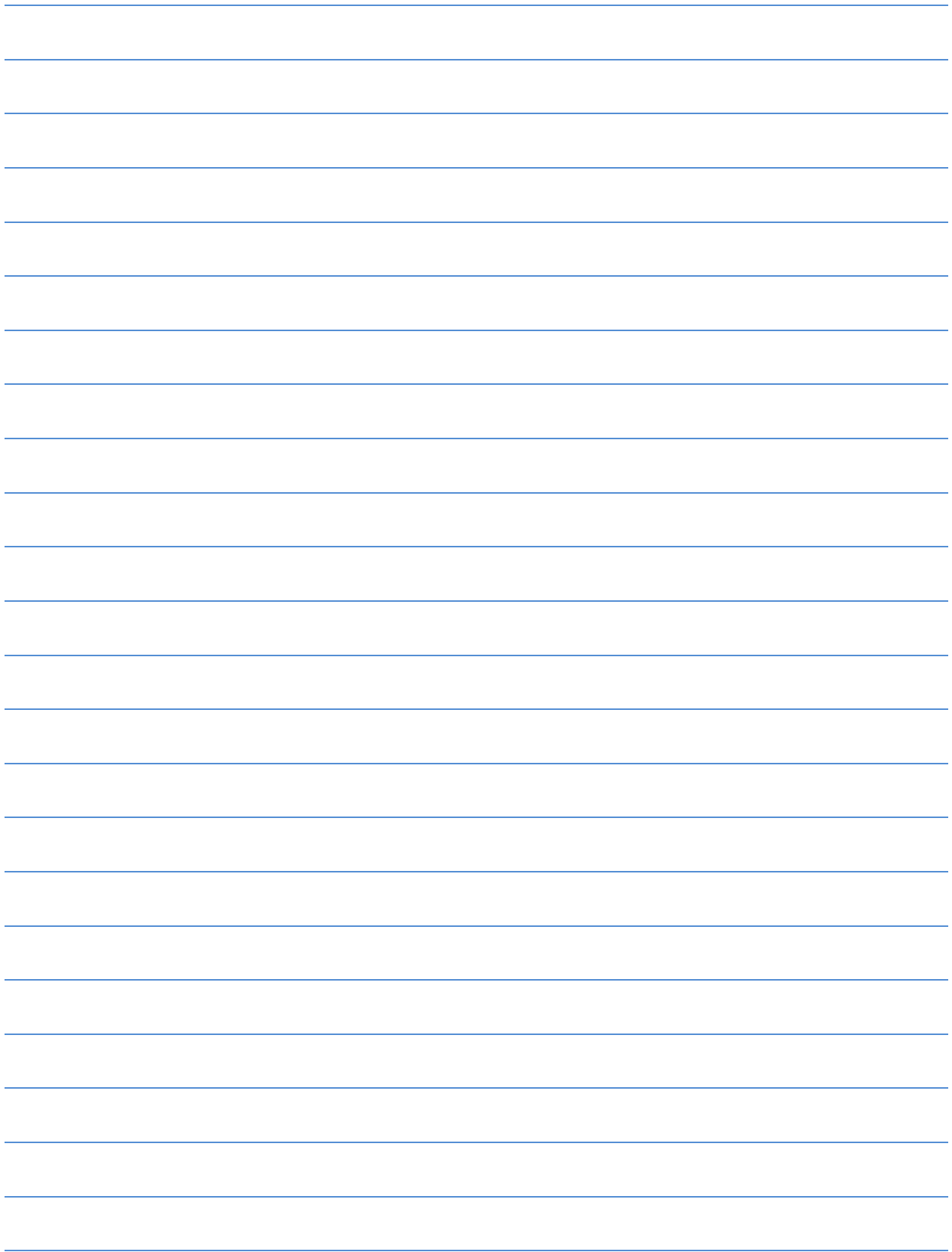


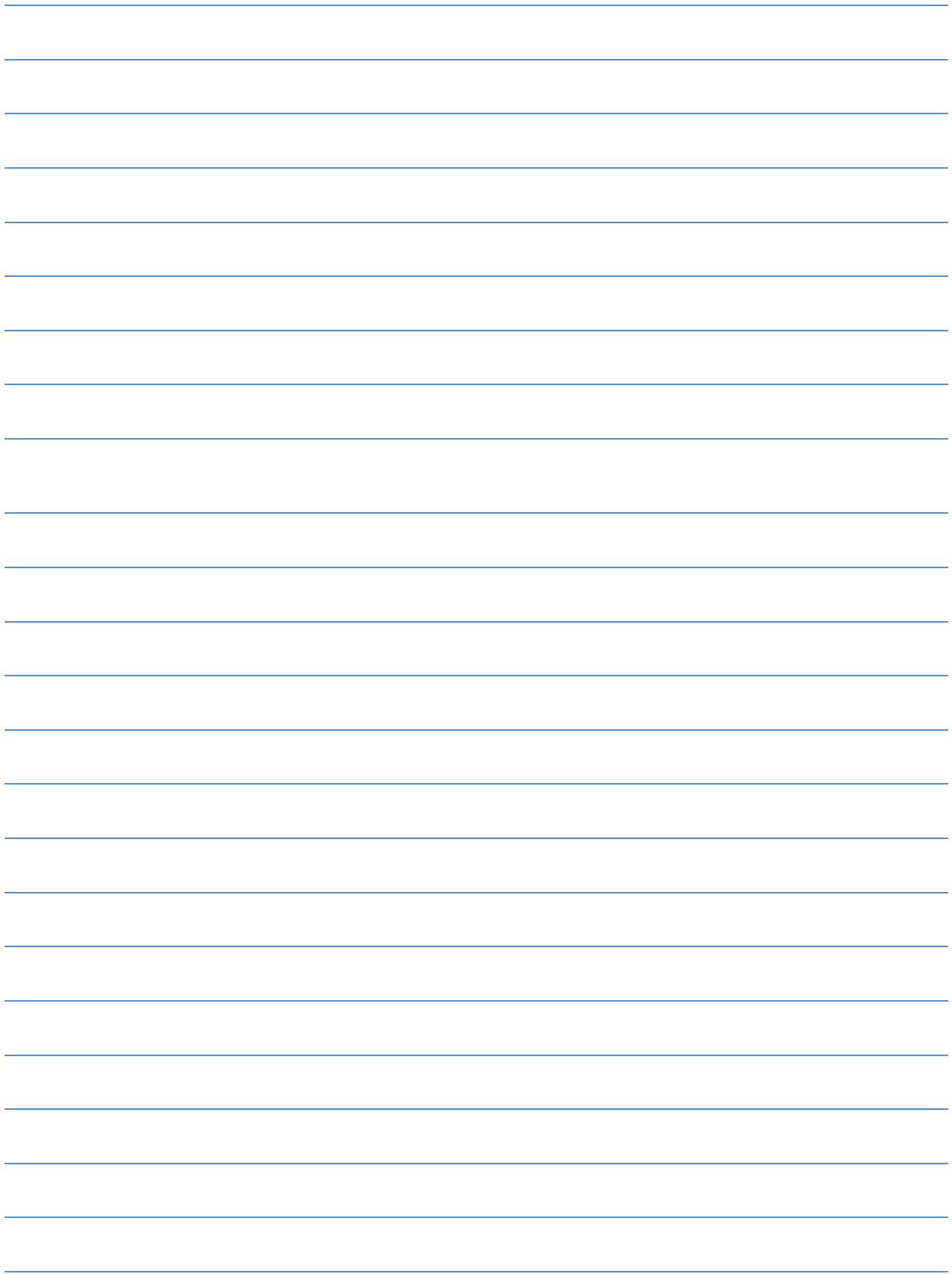


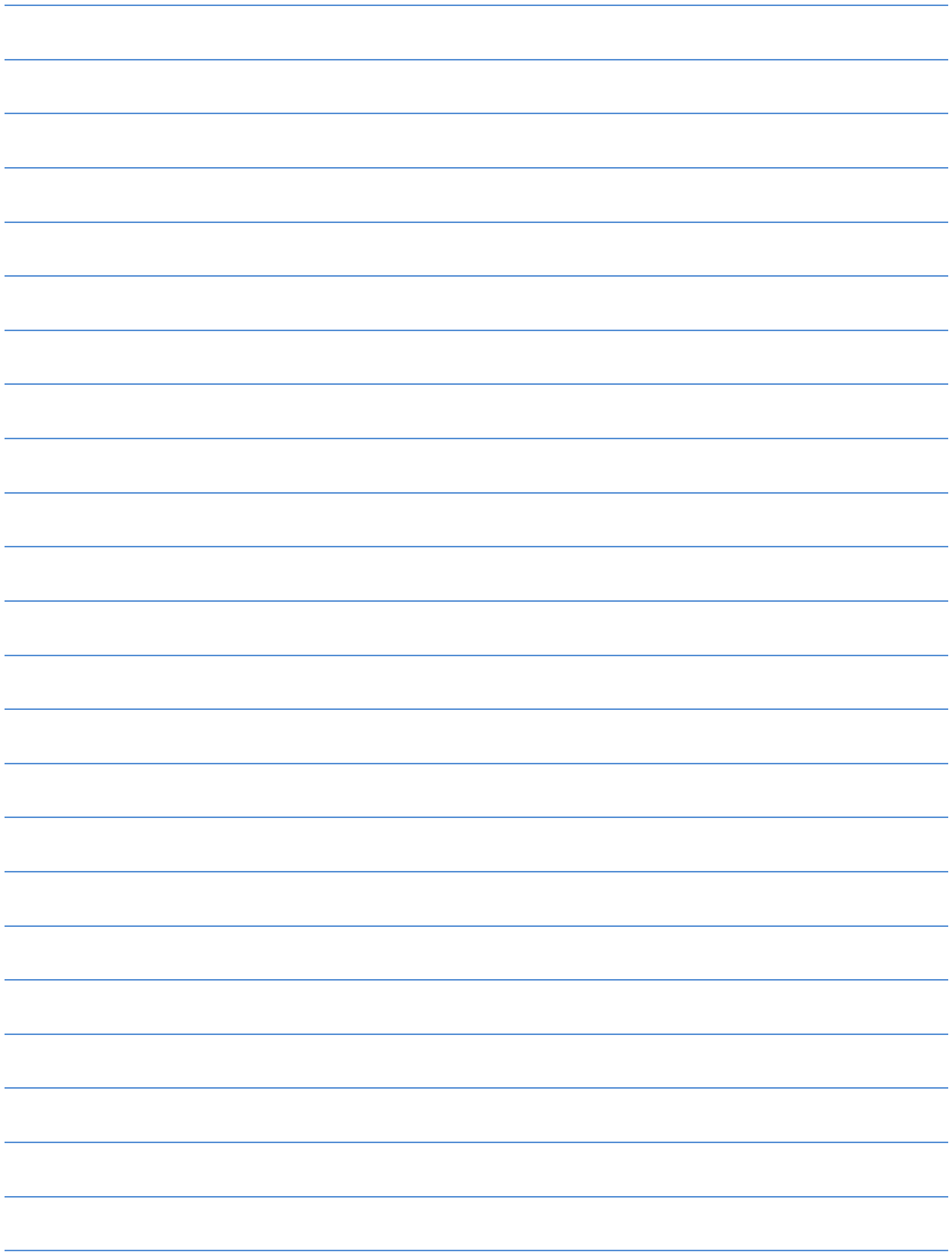




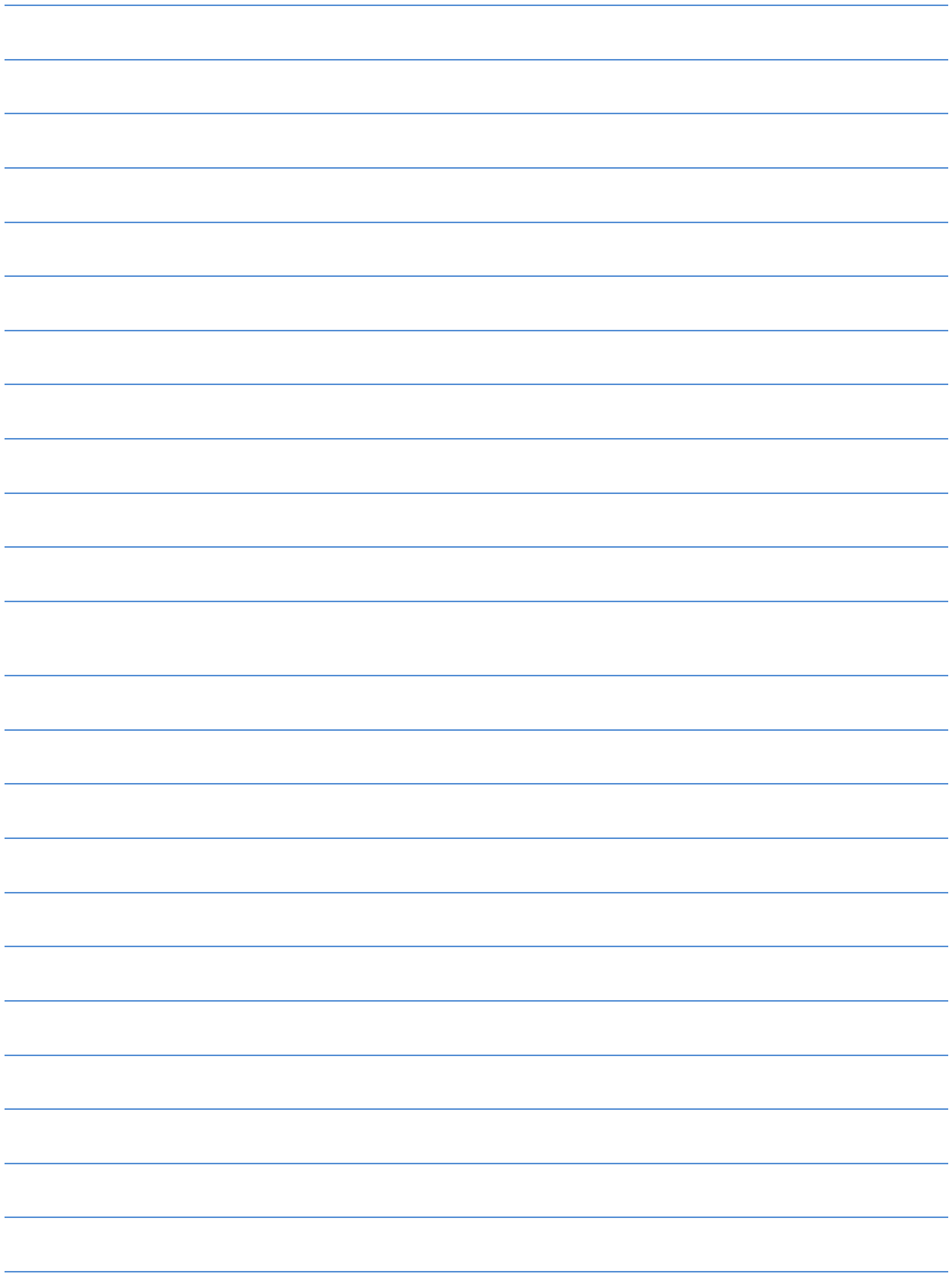


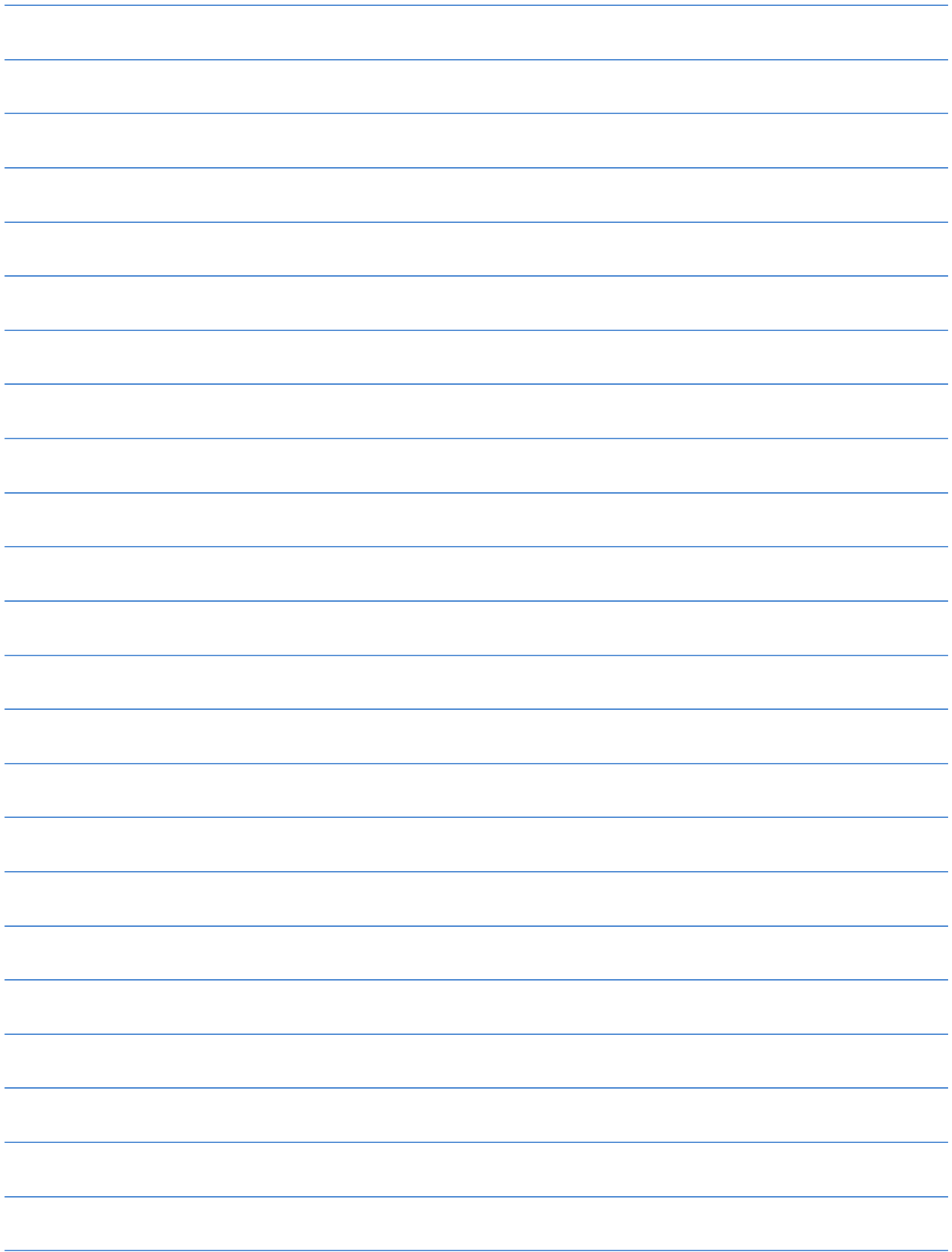


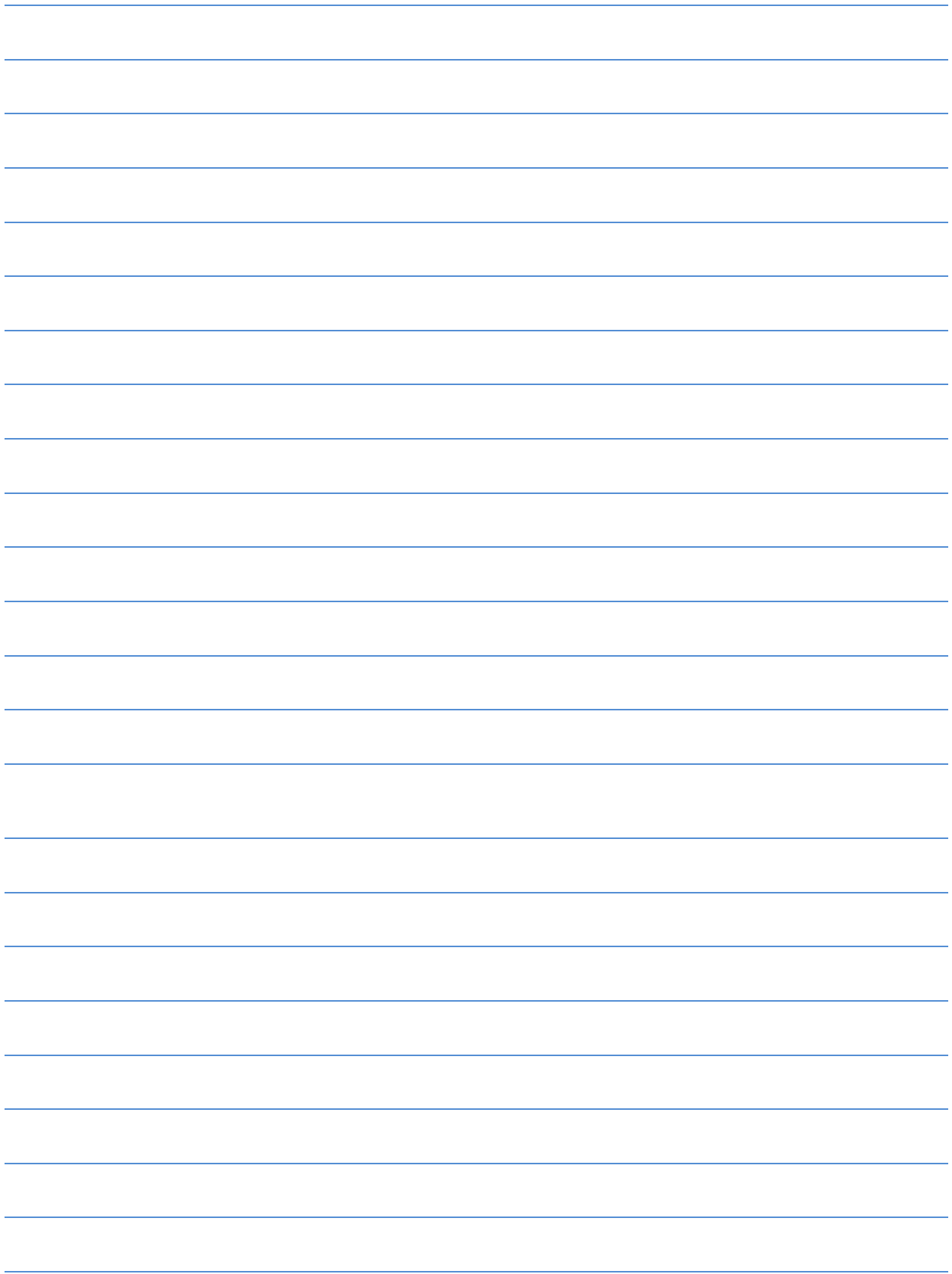


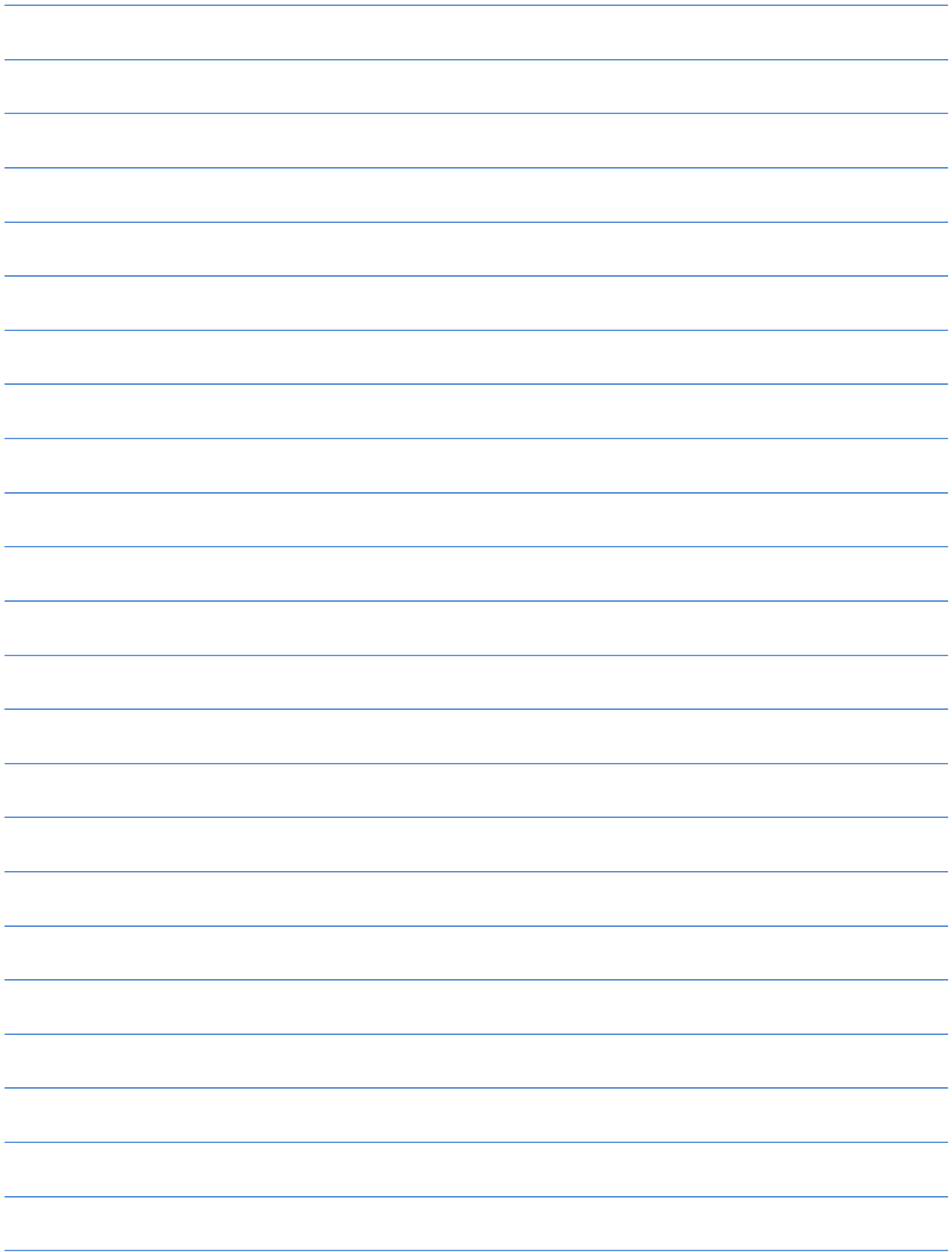


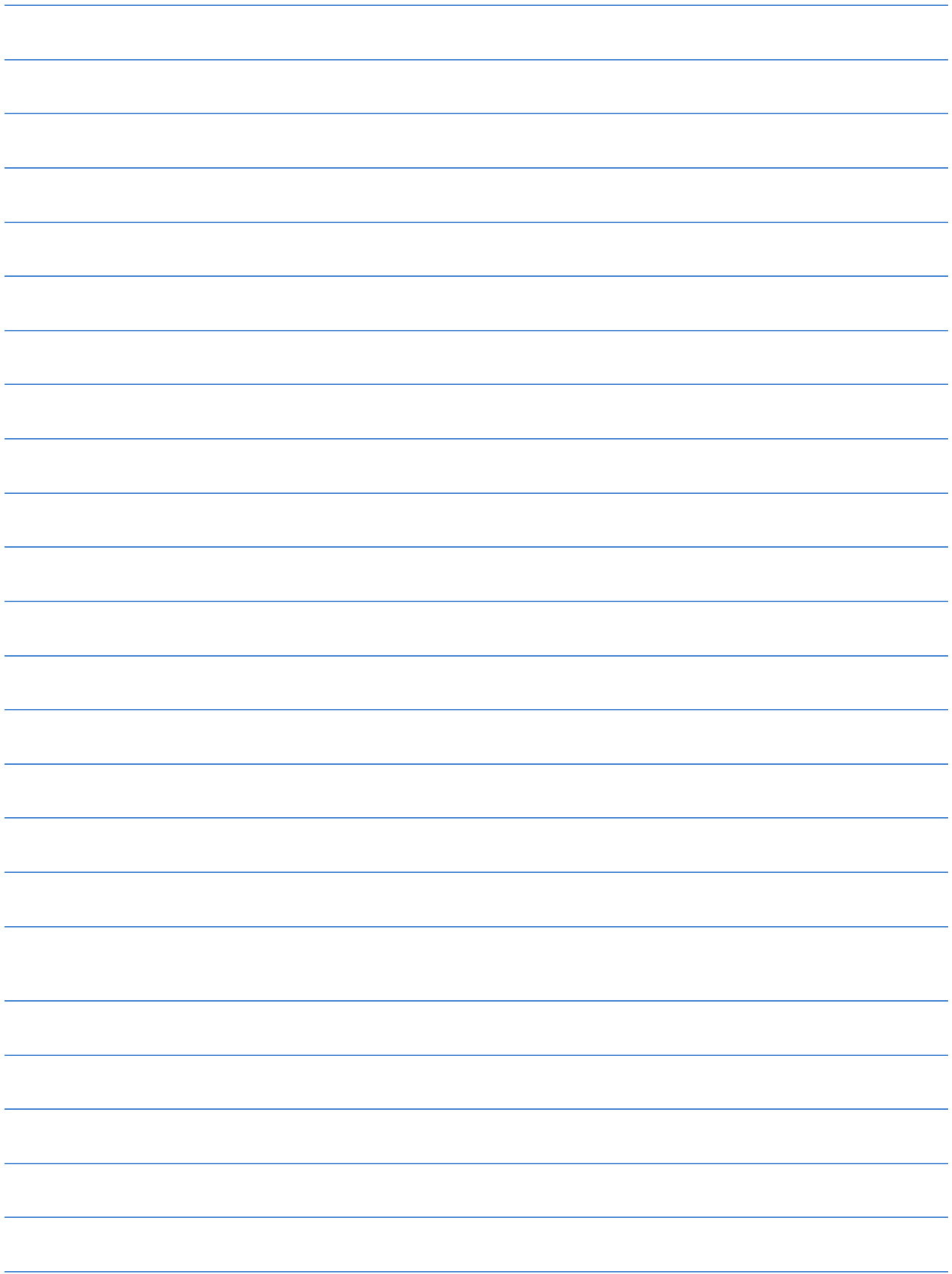


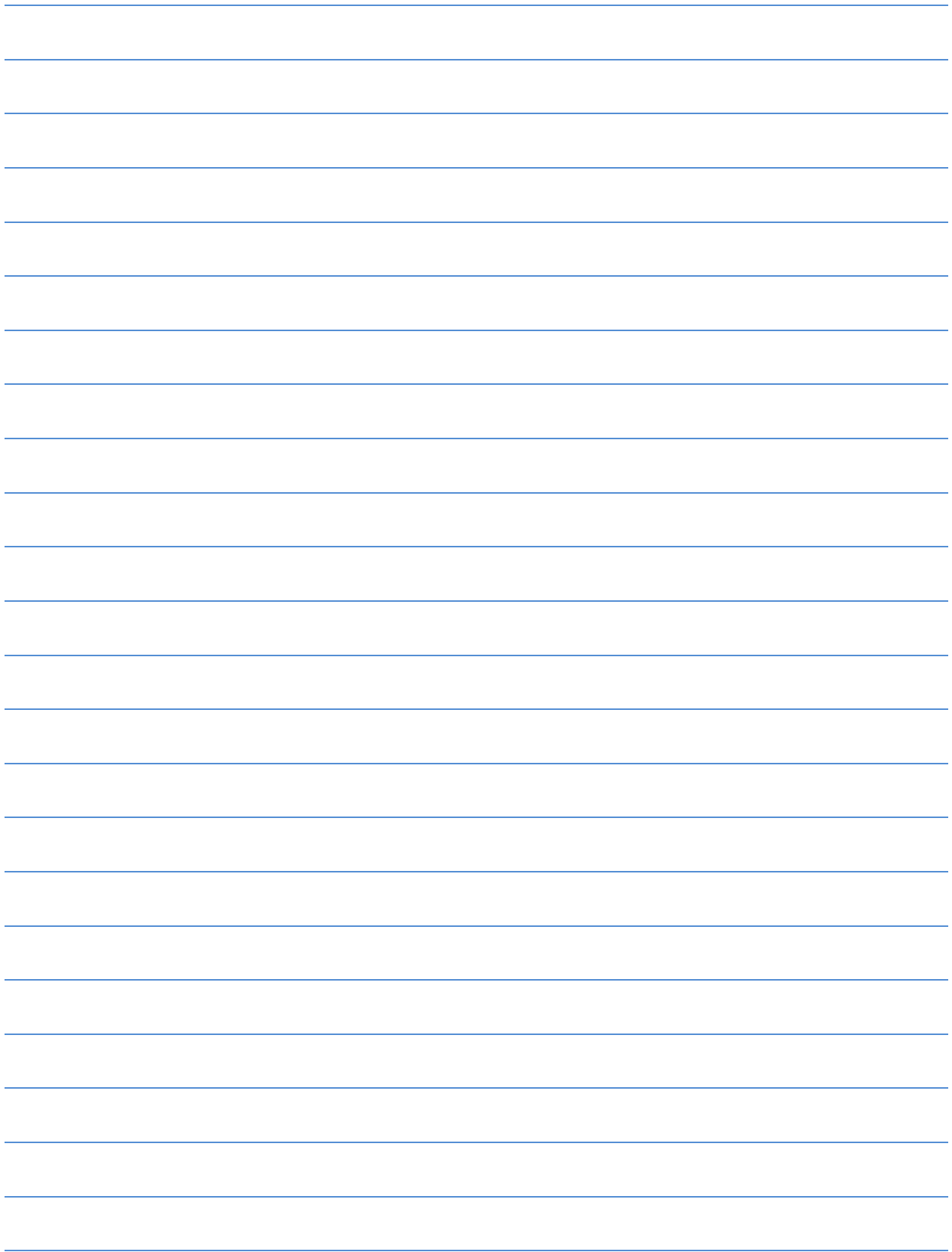


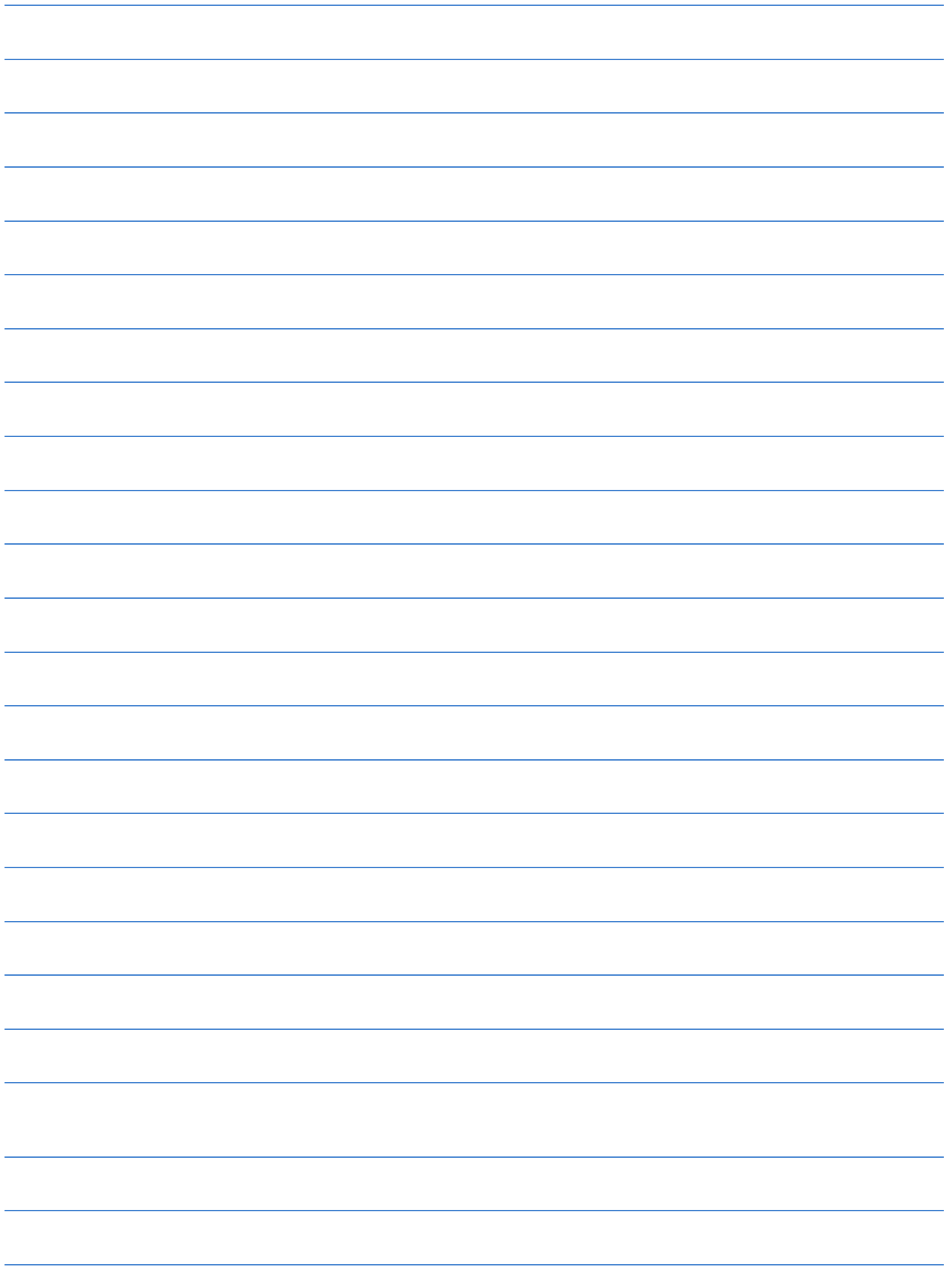


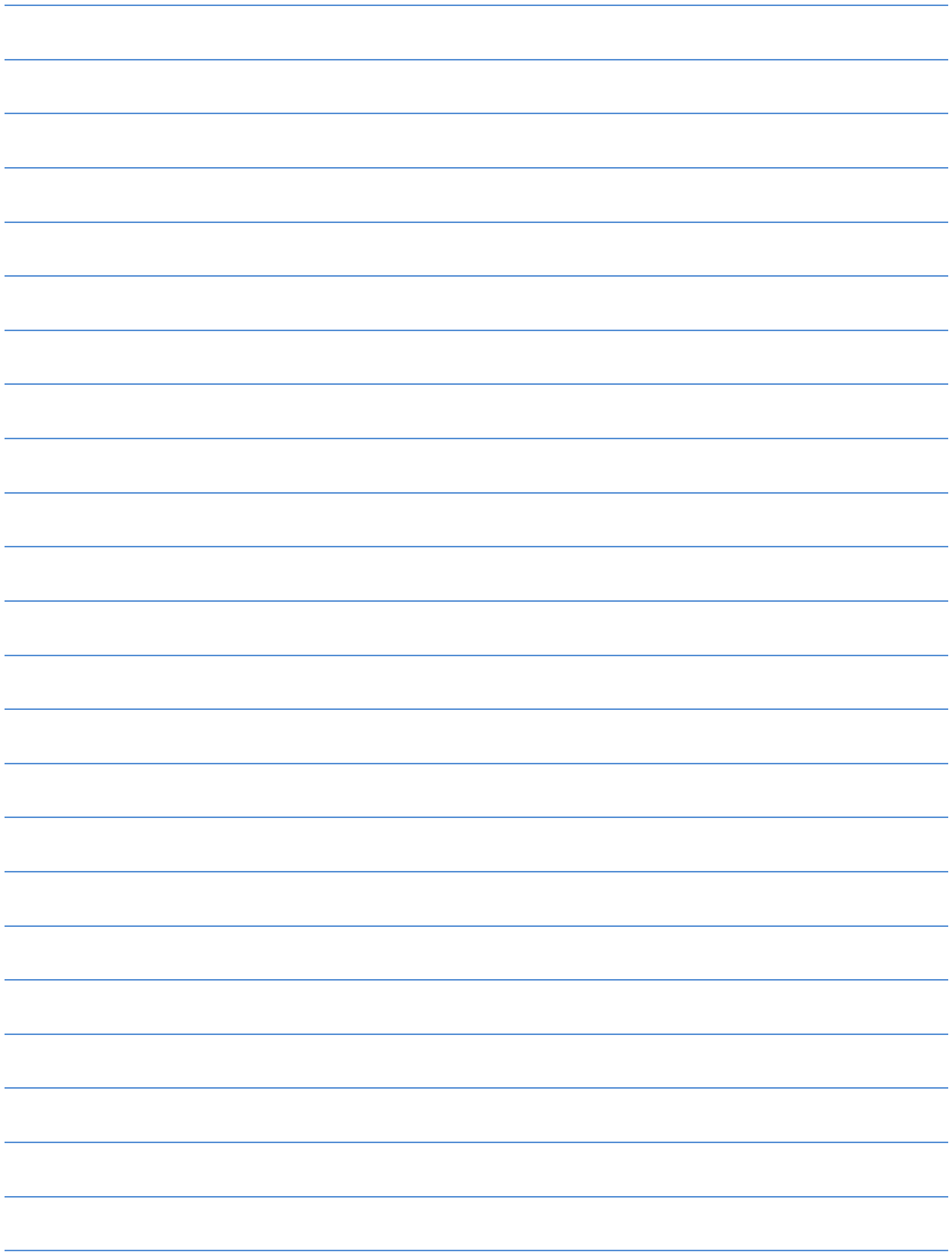




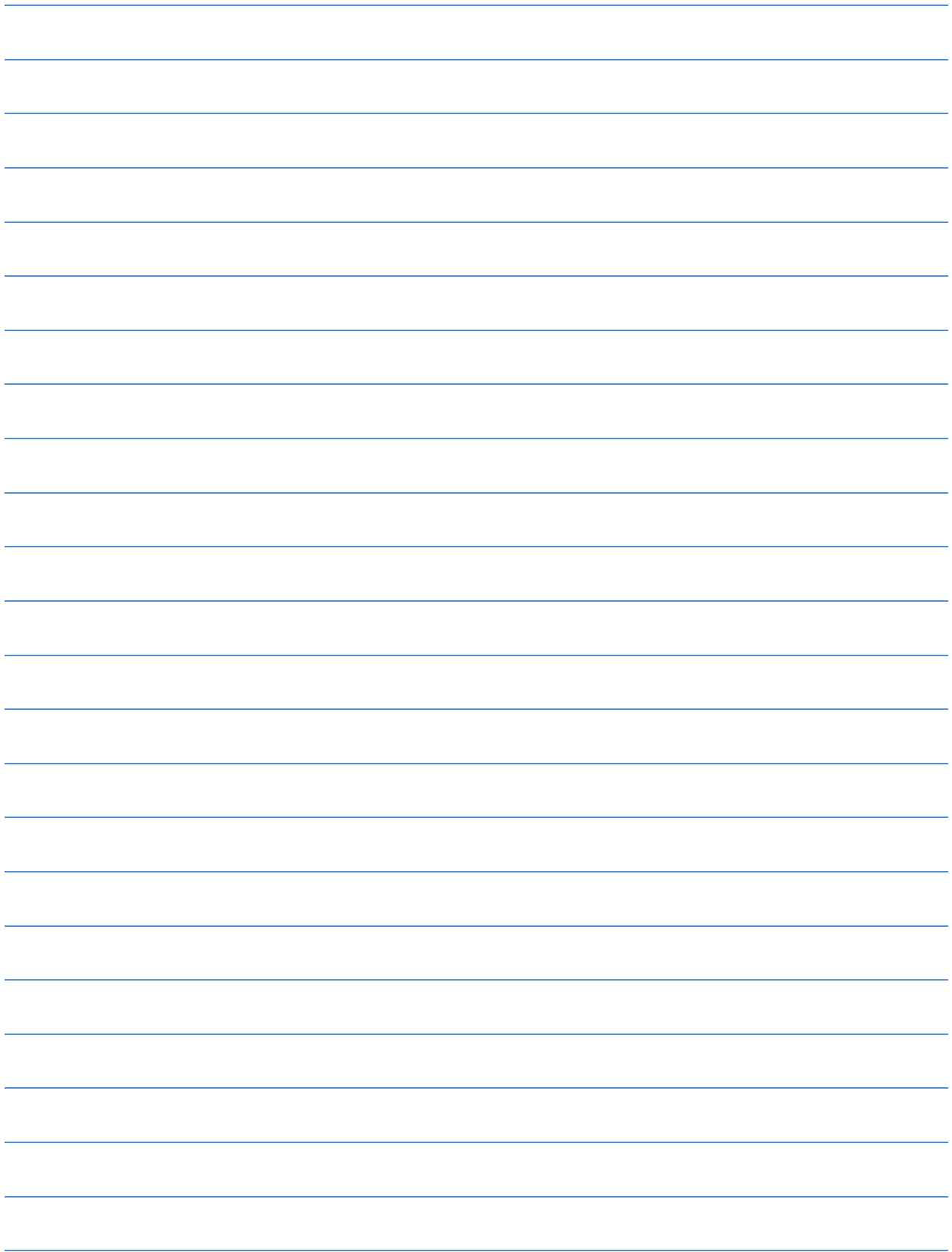


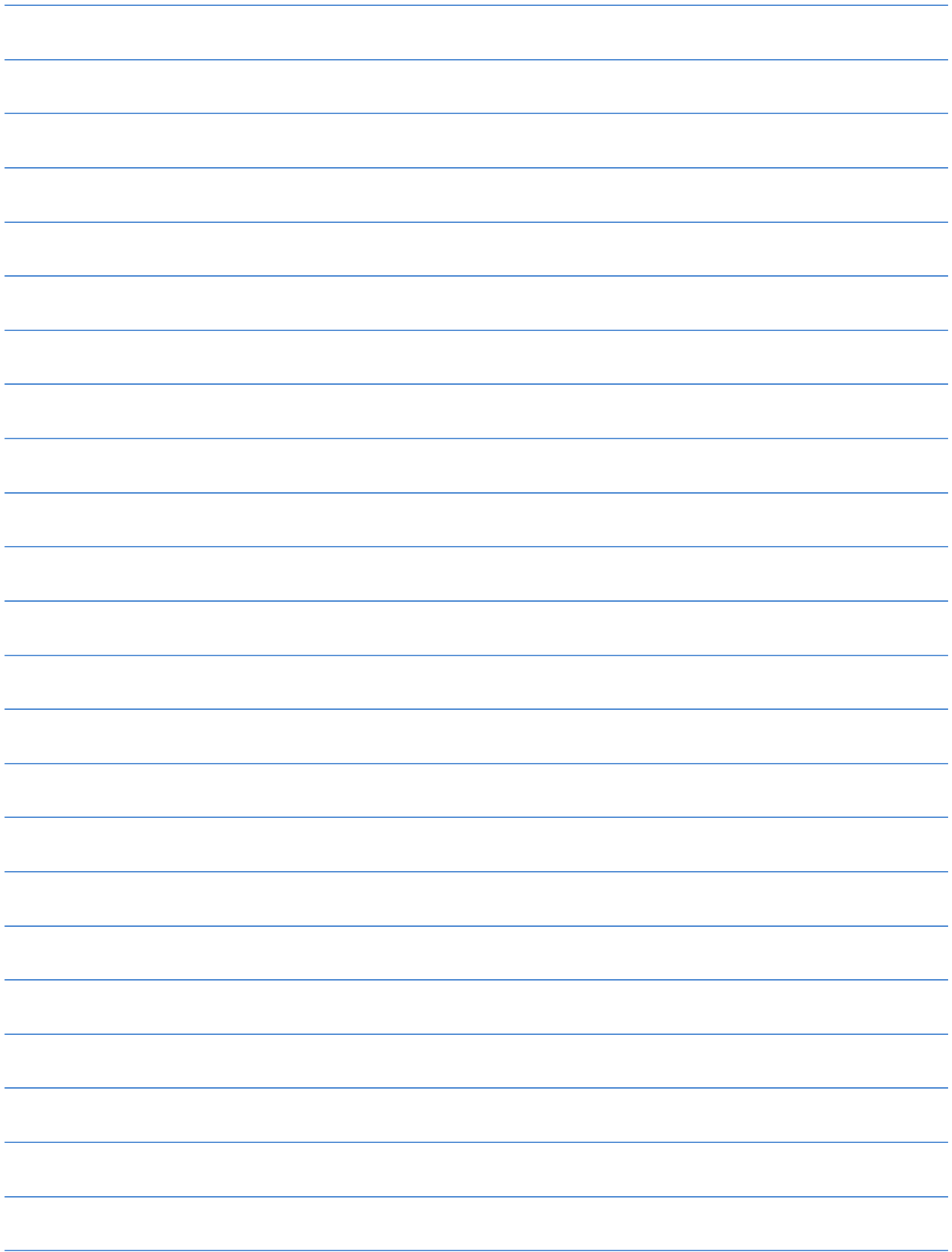


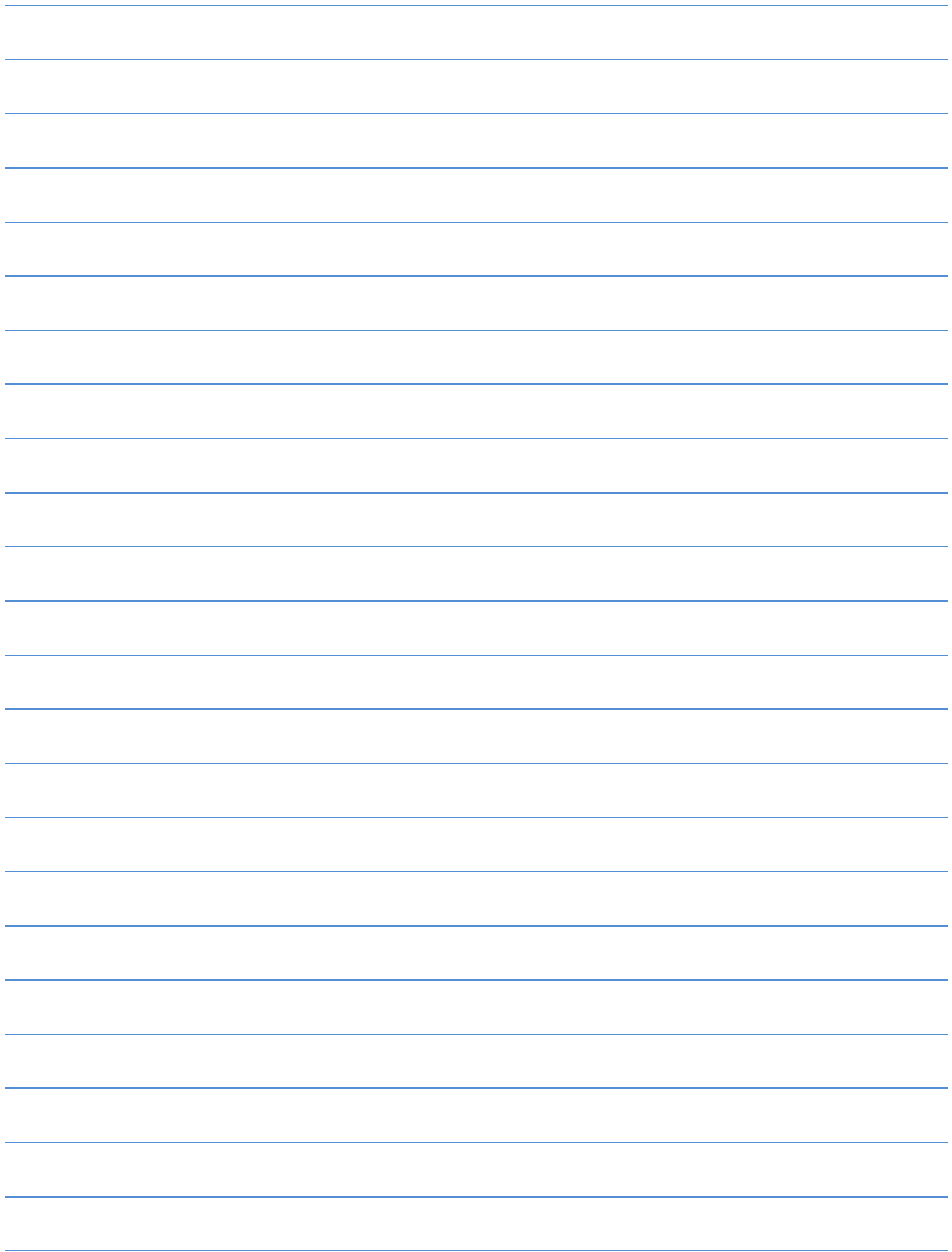


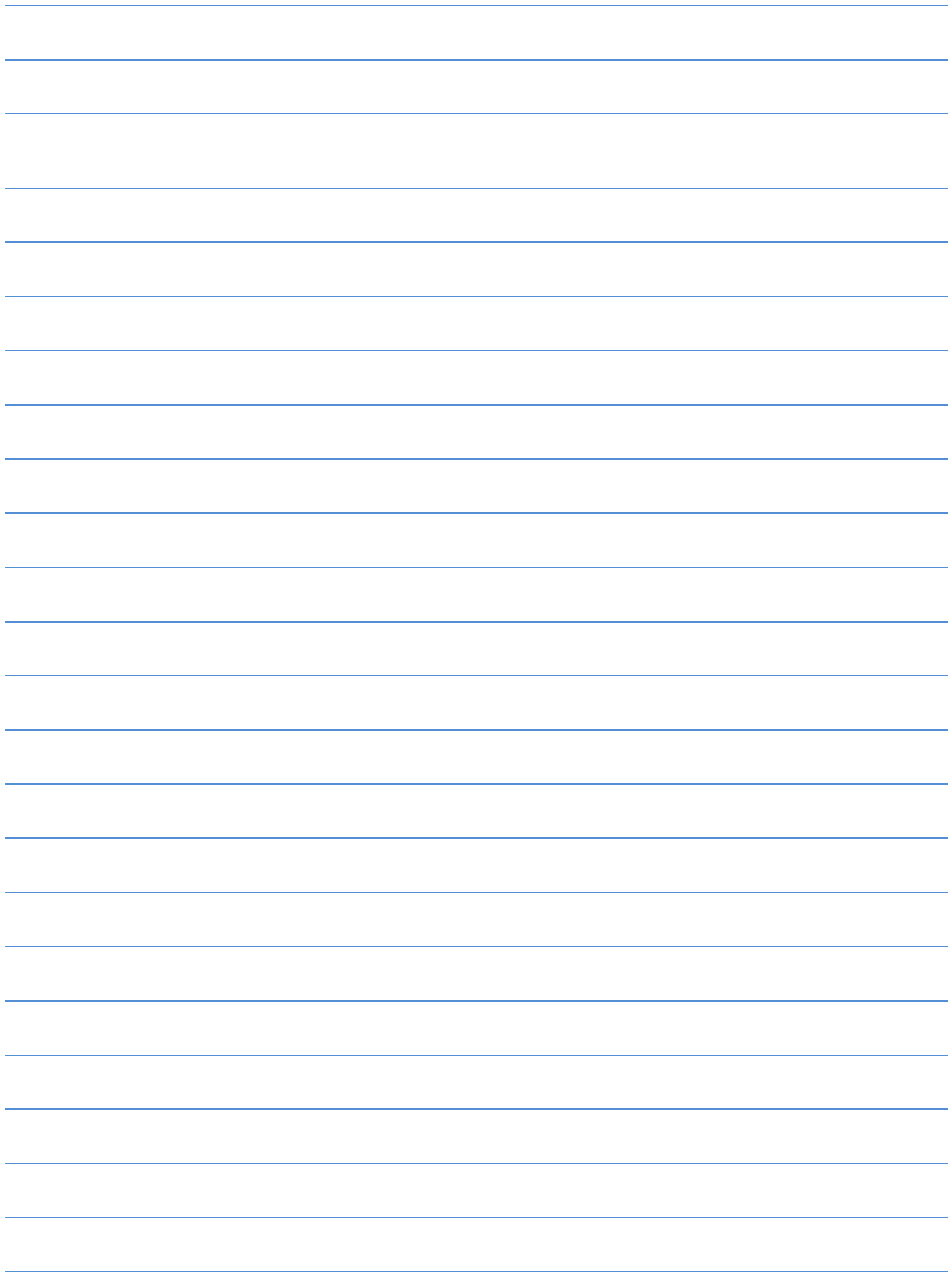


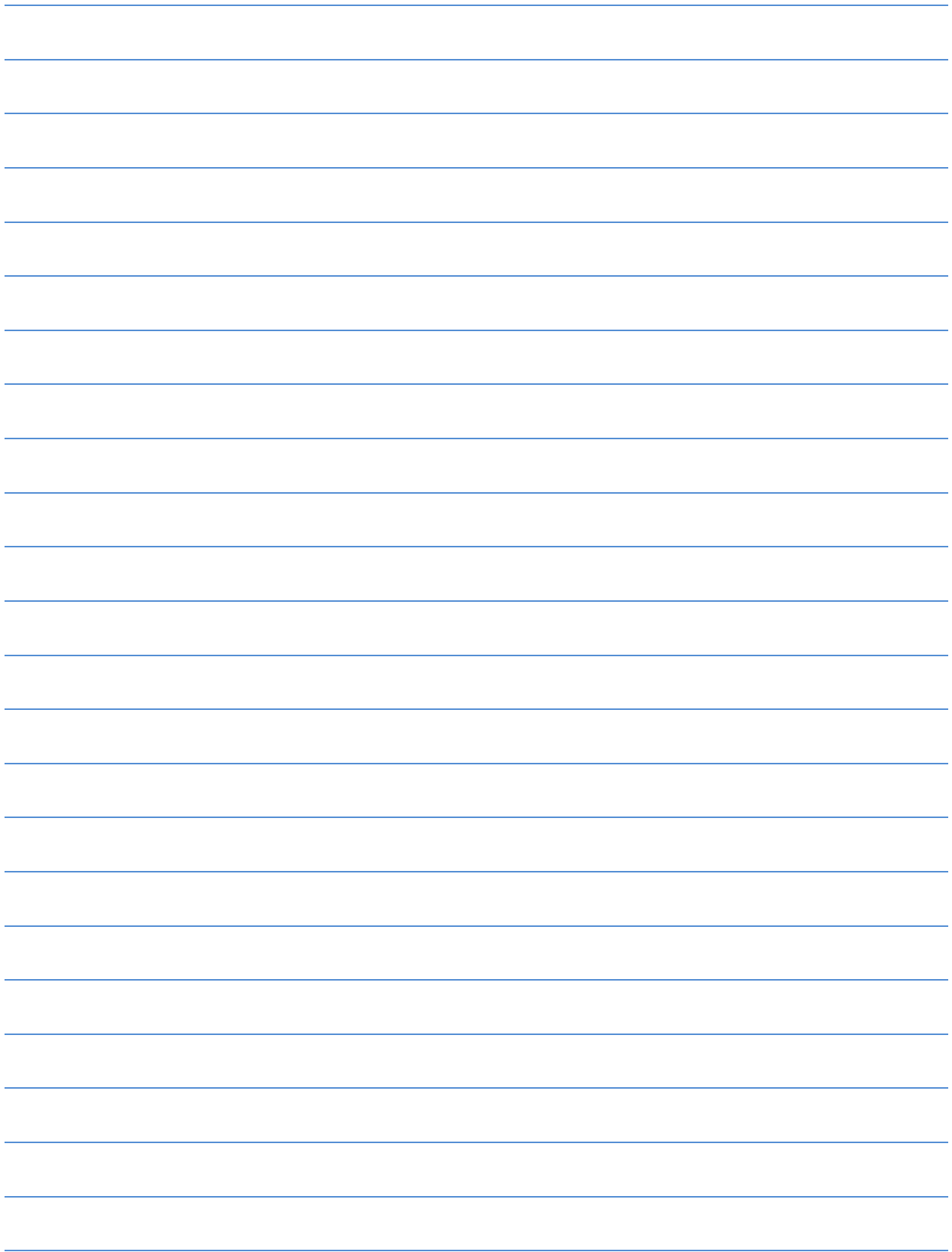


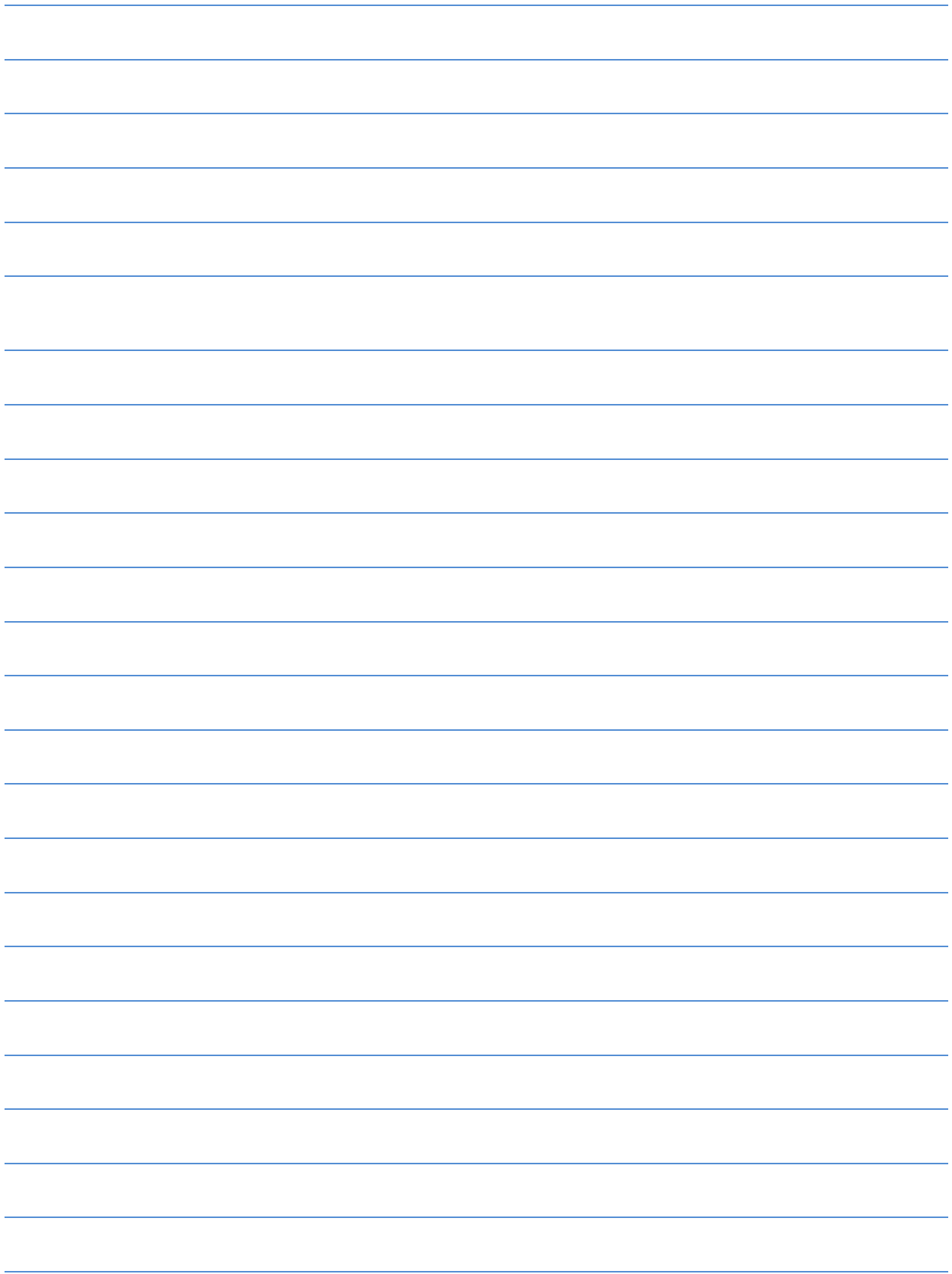


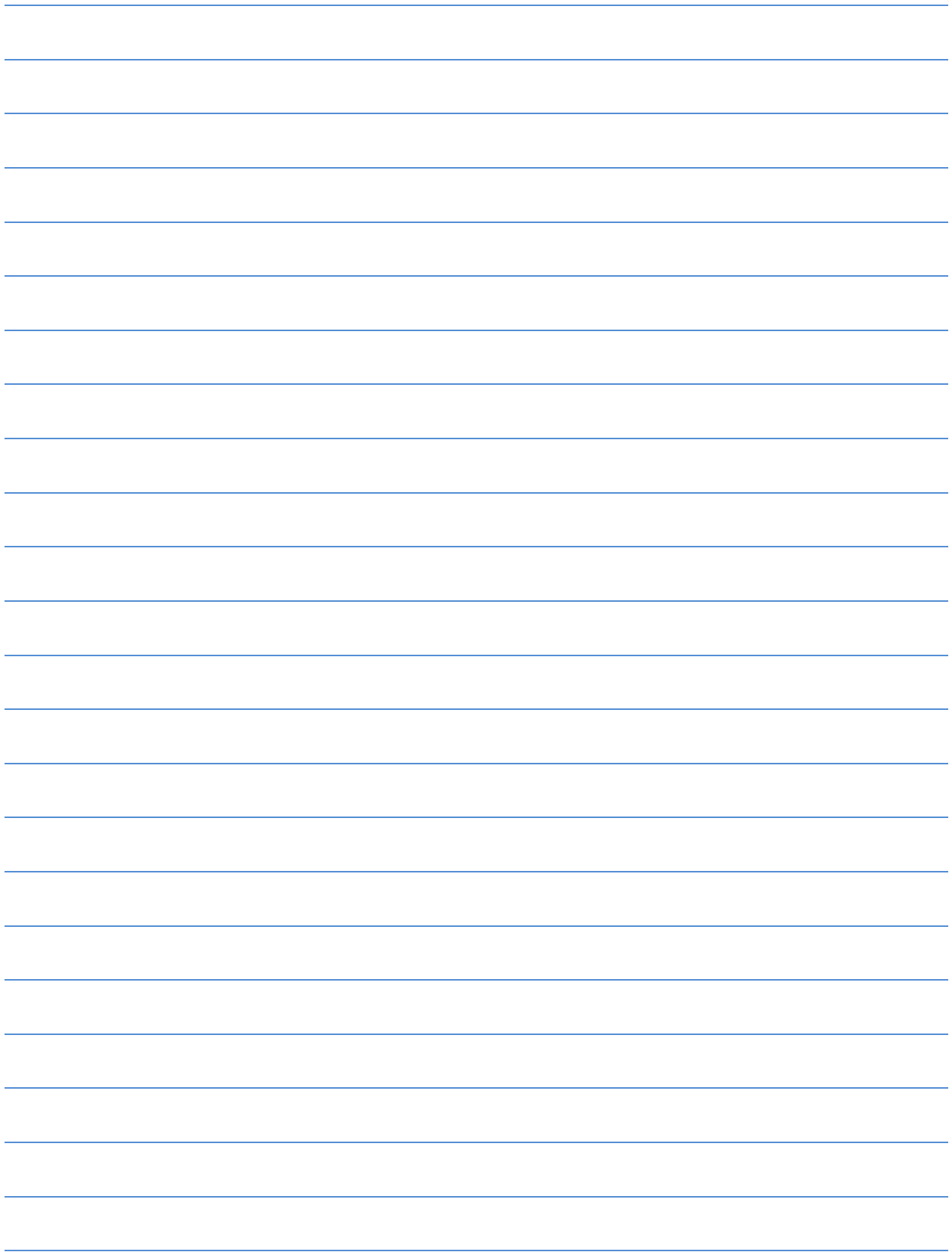












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