

# THE DALE-CHALL READABILITY SAMPLES

Jeanne Chall and Edgar Dale's *Readability Revisited: The New Dale-Chall Readability Formula* featured the following text samples, with the difficult words not found on their new word list underlined (pp. 135-140).

## Grade 1

One morning Toad sat in bed.  
"I have many things to do," he said.  
"I will write them all down on a list so that I can remember them."  
Toad wrote on a piece of paper: A list of things to do today.  
Then he wrote:  
Wake up.  
"I have done that," said Toad, and he crossed it out.  
From *Frog and Toad Together*

| <i>Readability Data</i>                    |    |
|--|----|
| Number of Words in Sample .....            | 60 |
| Number of Whole Sentences.....             | 6  |
| Number of Unfamiliar Words.....            | 0  |
| Number of Sentences/100 Words .....        | 10 |
| Number of Unfamiliar Words/100 Words ..... | 0  |
| Cloze Score .....                          | 57 |
| Reading Level.....                         | 1  |

## Grade 2

You said you didn't want it," said Thelma.  
"And anyhow, I don't want to sell it now."  
"Why not?" said Frances.  
"Well," said Thelma, "it is a very good tea set. It is plastic that does not break.  
It has pretty red flowers on it.  
It has all the cups and saucers.  
It has the sugar bowl and the cream pitcher and the teapot.  
It is almost new, and I think it cost a lot of money."  
"I have two dollars and seventeen cents," said Frances.  
"That's a lot of money."  
"I don't know," said Thelma.  
"If I sell you...  
From *A Bargain for Frances*

| <i>Readability Data</i>          |     |
|----------------------------------|-----|
| Number of Words in Sample .....  | 100 |
| Number of Whole Sentences .....  | 12  |
| Number of Unfamiliar Words ..... | 3   |
| Cloze Score .....                | 55  |
| Reading Level .....              | 2   |

## Grade 3

Once upon a time a very small witch was walking in the woods. The cold wind was blowing the dry leaves all around her. The little witch was frantically searching for a house for the winter. She could not find one. Suddenly a piece of orange paper, blown by the wind, landed at her feet. She picked it up.  
The little witch looked closely at the paper and then she said, "I shall make myself a little house from this piece of orange paper."  
She folded the paper in half. then she took her scissors (she always carried a pair...  
From *Highlights for Children*

| <i>Readability Data</i>         |     |
|---------------------------------|-----|
| Number of Words in Sample ..... | 100 |
| Number of Whole Sentences.....  | 8   |
| Number of Unfamiliar Words..... | 3   |
| Cloze Score .....               | 53  |
| Reading Level.....              | 3   |

## Grade 4

Seals are wonderful divers. Some seals can dive several hundred feet below the surface. On deep dives, they can stay underwater up to 40 minutes without surfacing to breathe. They have special features to help save oxygen on

| <i>Readability Data</i>         |     |
|---------------------------------|-----|
| Number of Words in Sample ..... | 100 |
| Number of Whole Sentences.....  | 9   |
| Number of Unfamiliar Words..... | 8   |

such dives. When seals dive, they stop breathing. For very deep dives, their blood flow to everything except critical organs stops or slows. Seals can also slow their heart rates, sometimes to one-tenth the rates at the surface.

You may wonder how seals avoid the bends on deep dives. The bends are a painful condition. They are caused when nitrogen dissolves in...

From *The Harp Seal*

**Grades 5-6**

Eskimos of Alaska's Arctic north coast have hunted whales for centuries.

Survival has depended on killing the 80-foot-long bowhead whales that swim from the Bering Sea to the ice-clogged Beaufort Sea each Spring. The Eskimos' entire way of life has been centered around the hunt.

But now that way of life is being threatened by America's need for oil, say many Eskimos who hunt the whales.

Huge amounts of oil may be beneath the Beaufort Sea. And oil companies want to begin drilling this spring.

However, many Eskimos say severe storms and ice conditions make drilling dangerous...

From *My Weekly Reader, Edition 6*

**Grade 7-8**

Why is it that as soon as "Jingle Bells" starts playing on the radio, otherwise-sane people are driven to extremes to create the Perfect Christmas? Take the case of Maureen McFadden, a *Woman's Day* editor, who decided to decorate her tree with homemade gingerbread ornaments. "I started late in the evening," she recalled. "And then I knocked the molasses jar on the floor." It was downhill from there. Her cat—long haired, of course—sat in the molasses pool. "And when I yelped, he ran down the hall into my bedroom spewing molasses everywhere." Still, after she washed the ....

From *Woman's Day*

**Grades 9-10**

The controversy over the laser-armed satellite boils down to two related questions: Will it be technically effective? And should the United States make a massive effort to deploy it?

To its backers, the laser seems the perfect weapon. Traveling in a straight line at 186,000 miles per second, a laser beam is tens of thousands of times as fast as any bullet or rocket. It could strike its target with a power of many watts per square inch. The resulting heat, combined with a mechanical shock wave created by recoil as surface layers were blasted away, could quickly melt...

Cloze Score .....49  
 Reading Level .....4

*Readability Data*  
 Number of Words in Sample 100  
 Number of Whole Sentences 6  
 Number of Unfamiliar Words 11  
 Cloze Score 42  
 Reading Level 5-6

*Readability Data*  
 Number of Words in Sample .....100  
 Number of Whole Sentences.....7  
 Number of Unfamiliar Words.....19  
 Cloze Score .....36  
 Reading Level .....7-8

*Readability Data*  
 Number of Words in Sample .....100  
 Number of Whole Sentences.....5  
 Number of Unfamiliar Words.....23  
 Cloze Score .....28  
 Reading Level .....9-10

From *Discover*

**Grades 11-12**

The latest finding is a refinement of evidence presented last summer by audio expert James Barger—who testified there was a 50 percent probability that four shots were heard on the tape. Barger had recorded test firings at various points in the Dealey Plaza, then compared them with the motorcycle recording. The greatest similarity was produced by two shots from the book depository, one from the knoll and another from the depository. But Barger did not draw firm conclusions because he could not pinpoint the policeman’s motorcycle; his estimate could have been 18 feet off in any direction. Weiss, whose...

*Readability Data*

|                                 |       |
|---------------------------------|-------|
| Number of Words in Sample ..... | 100   |
| Number of Whole Sentences.....  | 4     |
| Number of Unfamiliar Words..... | 23    |
| Cloze Score .....               | 25    |
| Reading Level .....             | 11-12 |

From *Newsweek*

**Grades 13-15**

Until the 1940’s, there were no specific psychiatric drugs. Bromides, barbiturates, and opiates were known to sedate disturbed patients but did not reverse the symptoms of severe mental illnesses such as the schizophrenias or manic-depressive psychoses. They did ameliorate anxiety, but only at the cost of fogging the minds of the recipients, who had to decide between being unhappy and being intoxicated. In the 1950’s, the first specific drug appeared: chlorpromazine (trade name Thorazine). It was synthesized when an antihistamine chemical relative was found to sedate surgical patients. However, clinical observations showed that this drug did much more than simply...

*Readability Data*

|                                 |       |
|---------------------------------|-------|
| Number of Words in Sample ..... | 100   |
| Number of Whole Sentences.....  | 5     |
| Number of Unfamiliar Words..... | 35    |
| Cloze Score .....               | 17    |
| Reading Level .....             | 13-15 |

From *Psychology Today*

**Grades 16+**

Further support for the view that educational expansion would reduce inequality was derived from the dualistic nature of developing societies. The economic structures of developing societies were said to consist of two sectors: a traditional sector that uses little capital, is relatively unproductive, does not require an educated labor force, and places a great emphasis on subsistence farming, small workshops and small commercial enterprises; and a modern sector that uses advanced technology and capital, is far more productive, and requires a labor force with at least some schooling. Expanding the educational system would qualify more workers for jobs where demands...

*Readability Data*

|                                 |     |
|---------------------------------|-----|
| Number of Words in Sample ..... | 100 |
| Number of Whole Sentences.....  | 2   |
| Number of Unfamiliar Words..... | 37  |
| Cloze Score .....               | -6  |
| Reading Level .....             | 16+ |

From *Harvard Educational Review*

## Qualitative Assessment Scales

The following samples are taken from *Qualitative Assessment of Text Difficulty, A Practical Guide for Teachers and Writers* by Jeanne S. Chall, Glenda L. Bissex, Sue S. Conard, and Susan Harris-Sharples (1996). You can use them to compare with other texts for a subjective measurement of their difficulty.

The samples were selected on the basis of the following grade-related requirements for the reader:

1. Knowledge of vocabulary
2. Familiarity with sentence structure
3. Subject-related and cultural knowledge
4. Technical knowledge
5. Density of ideas
6. Level of reasoning

The selections were then tested against:

1. Evaluation by several groups of teachers and administrators
2. Evaluation by students of corresponding grades
3. Cloze testing of students of corresponding grades
4. Readability formulas (Dale-Chall and Spache)

I have appended to each of the samples the results of different readability formulas. These scores demonstrate the typical discrepancies that result from:

- Different formulas use different methods to assess the difficulty of the vocabulary and sentence structure.
- The computerized versions use different methods to implement the original formulas. You may get still other results if you apply the original formulas manually.

It is through your own use, experience, and testing that you can choose a formula or group of formulas to use for your particular work and audience.

## Literature Scale

### Grade A.1

A train! A train!  
A train! A train!  
Could you, would you,  
On a train?  
Not on a train! Not in a tree!  
Not in a car! Sam! Let me be!  
I would not, could not, in a box.  
I could not, would not, with a fox.  
I will not eat them with a mouse.  
I will not eat them in a house.  
I will not eat them here or there.  
I will not eat them anywhere.  
I do not like green eggs and ham.  
I do not like them, Sam-I-am.

From *Dr. Seuss, Green Eggs and Ham* (pp. 33-34).

Flesch Reading Ease: 100

Flesch-Kincaid Grade Level: 0

Corrected Dale-Chall 4.2

Fog 2.9

Powers 2.9

Smog: 4.8

FORCAST: 5.3

Fry Graph: N/A

## Grade 2

Jonathan pushed back the big iron pot and stood up.

There were no bears. But up the path came his father, carrying his gun. And with him were Jonathan's Uncle James and his Uncle Samuel, his Uncle John and his Uncle Peter. Jonathan had never in all his life been so glad to see the uncles.

"Jonathan!" said his father, "what a fright you have given us! Where have you been all this time?"

"Coming over Hemlock Mountain," said Jonathan in a small voice. And he ran right into his father's arms.

Flesch Reading Ease: 85.2

Flesch-Kincaid Grade Level: 3.9

Corrected Dale-Chall: 5.7

Fog: 6.7

Powers: 4.6

Smog: 7.5

FORCAST: 8.8

Fry Graph: 4

## Grade 3

For months I had been telling myself that I would never put the Magic Finger upon anyone again—not after what happened to my teacher, old Mrs. Winter. Poor old Mrs. Winter.

One day we were in class, and she was teaching us spelling. "Stand up," she said to me, "and spell kat."

"That's an easy one," I said. "*K-a-t*."

"You are a stupid little girl!" Mrs. Winter said.

"I am not a stupid little girl!" I cried. "I am a very nice little girl!"

"Go and stand in the corner," Mrs. Winter said.

Then I got cross, and I saw red, and I put the Magic Finger on Mrs. Winter good and strong, and almost at once...

Guess what?

*Whiskers* began growing out of her face! They were long black whiskers, just like the little ones you see on a kat, only much bigger. And how fast they grew! Before we had time to think, they were out to her ears!

Flesch Reading Ease: 93.19

Flesch-Kincaid Grade Level: 2.5

Corrected Dale-Chall: 4.8

Fog: 3.8

Powers: 4.1

Smog: 4.3

FORCAST: 8.4

Fry Graph: 2

#### Grade 4

The wheelbarrow picked up speed, so quickly that it sort of kicked up like a whipped horse. I thought the handle was going to rip right out of my fingers.

"Hang on," I said.

"If I can," said Soup.

We were running now, full speed, smack down Sutter's Hill and heading full tilt toward the party. Ahead of us, the giant pumpkin bounced around inside the bin of the barrow. I felt like we'd stolen the moon.

"We're out of control!" yelled Soup.

"Turn it. Do anything, anything!"

"Can't."

The front door of the Baptist Church grew bigger and bigger, rushing toward us like a mad monster. My feet hardly touched the ground. I was too frightened to hang on much longer, yet frightened even more to let loose. Soup was screaming and so was I.

"Stop," wailed Soup.

From the street, there was one step up to the door of the Baptist Church. The door was closed.

Flesch Reading Ease: 94.52

Flesch-Kincaid Grade Level: 2.1

Corrected Dale-Chall: 4.7

Fog: 4.1

Powers: 4.0

Smog: 5.2

FORCAST: 8.1

Fry Graph: 2

#### Grade 6

"Brothers. What do you expect of me—to stand idly by while you burn my son? My son has brought death to none of us. The scratches he gave us are not on our bodies but our pride. Brothers. How if my son is burnt do I go back and face her who lives with me in my house? How do I look in the eyes of his sisters who think the rainbow arches over him? Brothers. It is easier for me to fight you all than go back and say that Cuyloga stood by and did nothing while his brothers in anger put his son to the fire."

With the quickness of Long Tail, the panther, he took his knife and cut the boy's thongs. Then he stood there waiting for the attack, but none came. The warriors

were too astonished. They watched, sullen and yet fascinated by the drama. This was the great Cuyloga at his bravest that they looked upon, and none knew what he would do next.

Flesch Reading Ease: 93  
Flesch-Kincaid Grade Level: 3.3  
Corrected Dale-Chall: 5.6  
Fog: 6  
Powers: 4.2  
Smog: 6.6  
FORCAST: 7.4  
Fry Graph: 4

### Grade 8

All day Buck brooded by the pool or roamed restlessly about the camp. Death, as a cessation of movement, as a passing out and away from the lives of the living, he knew, and he knew John Thornton was dead. It left a great void in him somewhat akin to hunger, but a void which ached and ached, and which food could not fill. At times when he paused to contemplate the carcasses of the Yeehats, he forgot the pain of it; and at such times he was aware of a great pride in himself—a pride greater than any he had yet experienced. He had killed man, the noblest game of all, and he had killed in the face of the law of club and fang. He sniffed the bodies curiously. They had died so easily. I was harder to kill a husky dog than them. They were no match at all, were it not for their arrows and spears and clubs. Thenceforward he would be unafraid of them except when they bore in their hands their arrows, spears, and clubs.

Flesch Reading Ease: 83.57  
Flesch-Kincaid Grade Level: 5.7  
Corrected Dale-Chall: 10  
Fog: 8.8  
Powers: 4.8  
Smog: 8.7  
FORCAST: 7.7  
Fry Graph: 6

### Grade 10

Looking upward, I surveyed the ceiling of my prison. It was some thirty or forty feet overhead, and constructed much as the side walls. In one of its panels a very singular figure riveted my whole attention. It was the painted figure of Time as he is commonly represented, save that, in lieu of a scythe, he held what, at a casual glance, I supposed to be the pictured image of a huge pendulum, such as we see on antique clocks. There was something, however, in the appearance of this machine which caused me to regard it more attentively. While I gazed directly upward at it (for its position was immediately over my own) I fancied that I saw it in motion. In an instant afterward the fancy was confirmed. Its sweep was brief, and of course slow. I watched it for some minutes somewhat in fear, but more in wonder. Wearied at length with observing its dull movement, I turned my eyes upon the other objects in the cell.

A slight noise attracted my notice, and, looking to the floor, I saw several enormous rats traversing it. They had issued from the wall which lay just within view to my right.

Flesch Reading Ease: 68.30

Flesch-Kincaid Grade Level: 7.4

Corrected Dale-Chall: 10

Fog: 11.1

Powers: 5.6

Smog: 10.6

FORCAST: 9.4

Fry Graph: 8

### Grade 12

For the rest he lived solitary, but not misanthropic, with his books and his collection, classing and arranging specimens, corresponding with entomologists in Europe, writing up a descriptive catalogue of his treasures. Such was the history of the man whom I had come to consult upon Jim's case without any definite hope. Simply to hear what he would have to say would have been a relief. I was very anxious, but I respected the intense, almost passionate, absorption with which he looked at a butterfly, as though on the bronze sheen of these frail wings, in the white tracings, in the gorgeous markings, he could see other things, an image of something as perishable and defying destruction as these delicate and lifeless tissues displaying a splendour unmarked by death.

"Marvellous!" he repeated, looking up at me. "Look! The beauty—but that is nothing—look at the accuracy, the harmony. And so fragile! And so strong! And so exact! This is Nature—the balance of colossal forces. Every star is so—and every blade of grass stands *so*—the mighty Kosmos in perfect equilibrium produces—this. This wonder; this masterpiece of Nature—the great artist."

Flesch Reading Ease: 56.65

Flesch-Kincaid Grade Level: 8.5

Corrected Dale-Chall: 12

Fog: 12.3

Powers: 6.2

Smog: 11.5

FORCAST: 10.5

Fry Graph: 11

### Grade 14

It would have been in consonance with the spirit of Captain Vere should he on this occasion have concealed nothing from the condemned one; should he indeed have frankly disclosed to him the part he himself had played in bringing about the decision, at the same time revealing his actuated motives. On Billy's side it is not improbable that such a confession would have been received in much the same spirit that prompted it. Not without a sort of joy indeed he might have appreciated the brave opinion of him implied in his captain making such a confidant of him. Nor as to the sentence itself could he have been insensible that it was imparted to him as to one not afraid to die. Even more may have

been. Captain Vere in the end may have developed the passion sometimes latent under an exterior stoical or indifferent. He was old enough to have been Billy's father. The austere devotee of military duty, letting himself melt back into what remains primeval in our formalised humanity, may in the end have caught Billy to his heart, even as Abraham may have caught young Isaac on the brink of resolutely offering him up in obedience to the exacting behest.

Flesch Reading Ease: 56.71

Flesch-Kincaid Grade Level: 11

Corrected Dale-Chall: 10

Fog: 13.2

Powers: 6.4

Smog: 12.3

FORCAST: 9.9

Fry Graph: 10

## Popular Fiction Scales

### Grade 1

Morris the Moose wanted candy.

He went to the wrong store.

The man in the store said, "We don't sell candy. Can't you read?"

Then he showed Morris the candy store.

The man in the candy store said, "What would you like?"

Morris looked at the candy.

He liked the gumdrops.

He said, "Give me some of those."

The man said, "They are one for a penny. How much do you have?"

Morris looked. He had six pennies. "I have four pennies," he said.

The man laughed. "You have six! Can't you count? Don't you go to school?"

Morris asked, "What is school?"

Flesch Reading Ease: 104.42

Flesch-Kincaid Grade Level: 1

Corrected Dale-Chall: 4.8

Fog: 2.2

Powers: 3.4

Smog: 3.0

FORCAST: 7.2

Fry Graph: 1

## Grade 2

Farley lived next door to Grover's garden. He looked out his window and watched Grover planting seeds. Farley called out:

"Hi, Grover! Can I help you plant those seeds?"

"Why certainly, little Farley! Do not forget to wear a sweater," said Grover. "It is just a little bit cold outside today."

Farley took out his favorite sweater. His grandmother had made it for him. Farley started to put on his sweater. Something was wrong! The hole in the top was too small for his head. The sleeves were too tight. The front of the sweater only came down to the middle of his stomach.

From *Sesame Street Magazine* (Anon. 1979).

Flesch Reading Ease: 88.1

Flesch-Kincaid Grade Level: 2.7

Dale-Chall Grade Level: 5.5

Powers Grade Level: 4.3

Fog Grade Level: 4.3

Smog 5.8

FORCAST: 9.2

Fry Grade Level: 2

## Grade 3

Andrew ran all the way home. Then he remembered he had to go to Mrs. Burrow's house to get the key. The secret recipe for freckle juice was folded carefully in the bottom of Andrew's shoe. He was going to put it inside his sock, but he was afraid if his foot got sweaty the ink might blur and he wouldn't be able to read it. So, inside his shoe was safe enough. Even if it was windy nothing could happen to it there. He made up his mind not to read it until he got home. He didn't want to waste any time getting there. And he wasn't the world's fastest reader anyway, even though he'd gotten better since last fall. Still, there might be some hard words that would take a while to figure out.

Flesch Reading Ease: 86.1

Flesch-Kincaid Grade Level: 4.7

Corrected Dale-Chall: 5.1

Fog: 5.6

Powers: 4.6

Smog: 6

FORCAST: 8.5

Fry Graph: 5

## Grade 4

I knew there was no way out. Every kid at the swimming hole was watching as I started for the diving board. My legs trembled so much I could hardly walk. I was only eight years old and going to my death. I stopped as I reached the diving board. I looked down the river. All I had to do was run down the river bank and into the bushes. But if I did, I could never go home again. I was pretty young to go into the mountains and live like a naked savage. If I ran now, I would be a coward. Better by far to drown than to disgrace our family name.

I took a deep breath and ran right up the diving board and jumped into the swimming hole. This time I held my breath and kept my mouth shut as I paddled and kicked my way to the surface. Then I began paddling furiously with my arms and kicking my legs. The next thing I knew I had reached the river bank.

Flesch Reading Ease: 93.06

Flesch-Kincaid Grade Level: 3.2

Corrected Dale-Chall: 5.0

Fog: 5.4

Powers: 4.2

Smog: 5.4

FORCAST: 7.6

Fry Graph: 3

### Grade 6

Our two coaches stopped at a kind of promontory where there was a collection of ruins and relics of the former cities. I had read up the history carefully the night before, but there was so much of it, and a lot of it was so gory and horrifying that I hoped our guests would not expect too much from me. As we started off in the direction of several broken Roman arches I was relieved to see that the people who were really interested in history had their own books with them and were already consulting them for what they wanted to see. Others gathered around the small shop which sold souvenirs and colour slides. Geoffrey joined me and we strolled toward the ruins.

"What a history this place has," he remarked. "One of the bloodiest on record, I'd say. I was reading it up coming over on the plane. Well, Christians in those days certainly suffered and died for their faith."

Flesch Reading Ease: 72.2

Flesch-Kincaid Grade Level: 7.7

Corrected Dale-Chall: 7

Fog: 11.2

Powers: 5.5

Smog: 10.2

FORCAST: 8.8

Fry Graph: 7

### Grade 8

It was a sour and savage Korak who bade farewell to his baboon allies upon the following morning. They wished him to accompany them; but the ape-man had no heart for the society of any. Jungle life had encouraged taciturnity in him. His sorrow had deepened this to a sullen moroseness that could not brook even the savage companionship of the ill-natured baboons.

Brooding and despondent he took his solitary way into the deepest jungle. He moved along the ground when he knew that Numas was abroad and hungry. He took to the same trees that harbored Sheeta, the panther. He courted death in a hundred ways and a hundred forms. His mind was ever occupied with the reminiscences of Meriem and the happy years that they had spent together. He realized now to the full what she had meant to him. The sweet face, the tanned,

supple, little body, the bright smile that always had welcomed his return from the hunt haunted him continually.

Flesch Reading Ease: 68.8

Flesch-Kincaid Grade Level: 7.1

Corrected Dale-Chall: 10

Fog: 8.7

Powers: 5.5

Smog: 9.5

FORCAST: 9.6

Fry Graph: 7

### Grade 10

"Consider, Captain. When we collided with the creature we were moving, according to the final readout, at warp-four, coming up to warp-six, which we never fully attained. If we suddenly fed a sustained burst of emergency power to the engines, the equivalent of warp-factor seven or eight, it is possible that the surfeit of energy—of food—would dangerously strain the creature's absorptive capacities.

"It would have two choices: to burst from overconsumption or abandon its hold on the *Enterprise*. If the former happens, we will at least be free to search for another jawanda, without our knowledge of its abilities and habits enlarged. If the latter, we may be able to engage the Boquian mechanism before the engorged creature can escape."

"It sounds good," admitted McCoy hopefully. "Why are the Lactrans leery of trying it?"

"Their reasons are twofold, Doctor. Should the jawanda *not* be overloaded by the surge of energy, we run the risk as stated by Engineer Scott of losing or warp-drive capability altogether. This would leave us with only impulse power on which to recross a considerable amount of space." His gaze momentarily checked a figure displayed on one of the science station's several screens.

Flesch Reading Ease: 50.6

Flesch-Kincaid Grade Level: 10

Corrected Dale-Chall: 12

Fog: 12.2

Powers: 6.6

Smog: 11.6

FORCAST: 11

Fry Graph: 12

## Life Sciences Scale

### Grade 1

Have you ever visited a pond? The water is still. The air is quiet. You can hear a buzz.

Something is flying by. Splash! A shadow moves under the water. Many things are happening here.

A green frog is sitting on a green plant. Can you see it?

It is hard to see a frog when it sits still. How does a frog's color help it?

A frog can swim in the water. It can also hop on land.

From *Heath Science* (Barufald, Ladd and Moses, pp 193-195).

Dale-Chall 3.9

Flesch Reading Ease: 97.24

Flesch-Kincaid Grade Level: .1.1

Fog Grade Level: 3.3

Powers Grade Level: 3.8

Smog Grade Level: 5.5

FORCAST: 3.8

Fry Grade Level: 1

## Grade 2

Frogs and toads are amphibians without tails.

You can tell frogs apart by the patterns on their skins.

Some frogs have stripes.

The Swamp Tree frog has dark stripes down its back.

The Green Tree frog has a light stripe down each side and along its legs.

The Sheep frog has a light stripe down the middle of the back.

Which is which?

Sometimes size is a clue.

The bullfrog is big. It can be 8 inches long. The Green frog is smaller. It gets to be only 3.5 inches long.

Flesch Reading Ease: 97.71

Flesch-Kincaid Grade Level: 1.7

Corrected Dale-Chall: 7.1

Fog: 4.1

Powers: 3.9

Smog: 5.2

FORCAST: 7.4

Fry Graph: 2

## Grade 3

Most amphibians lay their eggs in the spring. Most of them lay their eggs in the water.

The female frog lays lots of eggs. Each one has a ball of jelly around it. The eggs float in clumps on the water. The egg clumps are called spawn.

At first the eggs have no eyes or mouths. After a few days the eggs turn into tadpoles. They hang onto plants with their suckers.

Soon gills grow on the tadpole's head. The tadpole breathes through these gills and its skin while new gills grow inside its head. Then it loses the outside gills.

From *Frogs and Toads* (Morris, pp. 20-22).

Flesch Reading Ease: 101.53

Flesch-Kincaid Grade Level: 1

Dale-Chall Grade Level: 5.2

Fog Grade Level: 3.5

Powers Grade Level: 3.6

Smog Grade Level: 5.2

FORCAST: 6.8

Fry Grade Level: 1

#### Grade 4

Frogs, toads, and salamanders are *amphibians*. Amphibian comes from a Greek word that means double life. Amphibians begin their life cycle as water animals. They develop into air-breathing animals as they grow up.

Female amphibians lay their eggs in wet places. The eggs are covered with a jelly-like material to protect them. The eggs hatch into larvae, or tadpoles. Tadpoles swim in the water and grow legs. When they are adults, amphibians live on land and breathe air.

Toad tadpoles grow up quickly. It takes them only a few months to lose their tails and become small toads. After that, it may take as long as three years to become full-grown adults! Toads have been known to live 30 to 40 years.

When frog eggs hatch into tadpoles it takes them a very long time to grow up. Several years can go by before the tadpoles become frogs.

From *Addison-Wesley Science* (Rockcastle et al., p. 15)

Flesch Reading Ease: 77.36

Flesch-Kincaid Grade Level: 4.9

Dale-Chall Grade Level: 7.2

Powers Grade Level: 5.0

Fog Grade Level: 7.5

Smog Grade Level: 8.1

FORCAST 9.2

Fry Grade Level: 6

#### Grade 6

Most land animals get all the oxygen they need by breathing with the lungs. They expand the rib cage with the chest muscles and draw air into the lungs.

The bullfrog, however, has three ways of getting oxygen. The first way is called "lung breathing." Because the frog does not have ribs, it must push air into its lungs with its mouth. About once or twice a minute, it draws in a mouthful of air, then closes its nostrils, and forces the air into the lungs. As it does you can see the frog twitch.

In addition to breathing with its lungs, the frog also absorbs oxygen through the roof of its mouth. The roof of the mouth has a network of tiny blood vessels that take in oxygen. To get oxygen to this network, the frog constantly draws air in and out of its mouth only. The process is called "mouth breathing."

Flesch Reading Ease: 84.9

Flesch-Kincaid Grade Level: 4.9

Corrected Dale-Chall: 7.1

Fog: 7.9

Powers: 4.7

Smog: 8.0

FORCAST: 8.2

Fry Graph: 5

### Grade 8

While all this is happening, the embryo is getting longer. Now the tail bud begins to develop, and the embryo develops suckers beneath the place where the mouth will be. Although it is only about twenty-eight hours old and barely recognizable as a tadpole, the embryo now hatches. Toad embryos emerge very early, while frog and salamander embryos are further along when they come out of their jelly prisons. The small embryos hang by the suckers to the jelly. It will be five more hours before they can move their muscles at all.

When they are a little more than an day and a half old, their hearts begin to beat. Soon the blood begins to circulate through the gills, the developing eyes can be seen, the mouth opens, and the suckers begin to disappear. At two and a half days of age, when the blood starts circulating in the tail, they really look like tadpoles.

Flesch Reading Ease: 72.65

Flesch-Kincaid Grade Level: 7.4

Corrected Dale-Chall: 8

Fog: 9.5

Powers: 5.4

Smog: 8.8

FORCAST: 9.2

Fry Graph: 7

### Grade 10

When the tadpoles hatch, they have a tail, suckers and feathery external gills. Gradually, each tadpole undergoes a change of form, or metamorphosis. The external gills are replaced by internal gills. Then legs start to develop, the internal gills are replaced by lungs, and the tadpole becomes a small frog.

The eggs and tadpoles of frogs and toads are very vulnerable to predators, and some species have ingenious methods of protecting their young. Asian tree frogs lay their eggs in foam nests on leaves overhanging a stream or pool. When the eggs hatch, the tadpoles drop into the water below and continue their development there. The male smith frog builds a mud basin that fills with water and forms a private pool for the tadpoles. The tadpoles of some frogs develop in tiny pools of water that forms in the leaves of certain plants.

The male midwife toad carries his string of eggs wrapped around his legs. When they are ready to hatch, he takes them to a pool of water. In some species, such as the Seychelles frog and the Surinam toad, the tadpoles are carried on the back of one of the parents until they have fully developed. The tadpoles of the mouth-breeding frog develop in the large vocal sac of the male.

From *Nature* (Anon. 1989, p. 33)

Flesch Reading Ease: 71.22

Flesch-Kincaid Grade Level: 7.4

Dale-Chall Grade Level: 10

Fog Grade Level: 10.3

Powers: 5.5

Smog Grade Level 10.1

FORCAST: 9.1

Fry Graph Grade Level: 7

### Grade 12

Frogs and toads have an aquatic larval stage, the familiar tadpole. The fish-like tadpole has gills which are later lost in metamorphosis. The moist skin of frogs and other amphibians contains mucous glands that assist in maintaining the moisture. Moreover, the eggs of amphibians, laid in water or other moist areas, are usually covered with a gelatinous substance. Thus amphibians remain dependent on aquatic (or at least wet) environments in many ways.

This group also shows adaptations for living on land. Most importantly, adults have lungs adapted for air breathing and are therefore no longer dependent on water for gas exchange. (It can occur through the skin when amphibians are in water.) Furthermore, the two nostrils are connected to the mouth cavity to facilitate breathing through the lungs. Almost all amphibians have two pairs of jointed appendages that permit locomotion both on land and in water. Frogs and toads also have sound-sensitive membranes ("external eardrums") on their bodies; such specialized sense organs are essential for land dwellers, because air does not transmit sound waves as efficiently as water. Finally, amphibians have a more efficient type of circulatory system than fish, including a heart with three chambers rather than two.

Flesch Reading Ease: 48.04

Flesch-Kincaid Grade Level: 10.4

Corrected Dale-Chall: 12

Fog: 12.8

Powers: 6.7

Smog: 12.1

FORCAST: 11.2

Fry Graph: 13

### Grade 15

The beginning of neurulation, or the formation of the nervous system in vertebrates, is marked by the appearance of a flattened plate of ectoderm that runs along the back of the embryo. Soon it reaches from the head to the tail. The outer surface of the cells seems to contract and the sides of the plate rise up, leaving a groove between the newly risen skin. Eventually, the skin that forms the neural ridges grows together, forming a hollow fluid-filled tube, the neural tube. As the organism becomes more and more mature, the front end of the neural tube grows and changes shape to form a brain, while the rest of the tube becomes the spinal nerve cord. Other parts of the nervous system form as outgrowths of the neural tube.

In the frog, the embryo becomes a self-supporting, free-swimming larva that initially is more fishlike than froglike. Later this larva, the tadpole, undergoes a metamorphosis in which its body is reshaped into a form that is somewhat more suitable for terrestrial life. The fishlike tail is reabsorbed, small fore- and hindlimbs form, and the organism begins to look more like an adult frog.

Flesch Reading Ease: 61.55

Flesch-Kincaid Grade Level: 10

Corrected Dale-Chall: 12

Fog: 11.9

Powers: 6.1  
Smog: 10.7  
FORCAST: 9.7  
Fry Graph: 9

### Grade 17

It is possible to calculate that, if a frog oocyte (a developing egg cell) had the same number of ribosomal RNA genes as a body cell of the frog, it would take many years—far longer than a female frog lives—to make an egg with so many ribosomes.

Early in the development of the frog oocyte, however, the genes for ribosomal RNA undergo amplification: They are selectively replicated many hundredfold or thousandfold, while the rest of the nuclear DNA undergoes no further replication. These extra copies do not remain with the chromosome from which they are copied; they are "extrachromosomal" pieces of DNA that float free in the nucleus. They are all transcribed to yield ribosomal RNA, and egg development is completed in a matter of weeks instead of years. Amplification of ribosomal genes has been observed in other species. Amplification of nonribosomal genes—of structural genes coding for specific proteins, for example—has not yet been seen, despite intensive and critical search.

Rearrangement of structural genes, has however, been detected as a specific even in eukaryotic development. In the development of lymphocytes (the line of white blood cells that make antibodies in vertebrates), two genes that were originally located in different parts of the chromosome are physically combined to form a single functional structural gene that codes for one antibody polypeptide chain.

Flesch Reading Ease: 36.46  
Flesch-Kincaid Grade Level: 13.6  
Corrected Dale-Chall: 17  
Fog: 17  
Powers: 7.5  
Smog: 15.4  
FORCAST: 10.5  
Fry Graph: 16

## Physical Sciences Scale

### Grade 2

The earth we live on is in space. Space is all the room there is outside Earth's air. Earth—our home in space—is a planet.

A planet is a large world that travels around the sun. But the sun isn't a planet. It's a star that is a million times bigger than Earth.

Earth isn't the only planet that travels around the sun. There are eight others—some bigger than Earth, some smaller. The sun, together with its family of nine planets, is called the solar system.

Flesch Reading Ease: 85.78  
Flesch-Kincaid Grade Level: 3.6  
Corrected Dale-Chall: 6

Fog: 6.1  
Powers: 4.5  
Smog: 7.1  
FORCAST: 8.9  
Fry Graph: 4

### Grade 3

The stars, like the sun, are always in the sky, and they are always shining. In the daytime the sky is so bright that the stars do not show. But when the sky darkens, there they are.

What are the stars, you wonder, and how do they twinkle?

Stars are huge balls of hot, hot, gas. They are like the sun but they look small because they are much, much farther away. They are millions and trillions of miles away, shining in black space, high above the air.

Space is empty and does not move. Stars do not twinkle there, but twinkling begins when starlight hits the air. The air moves and tosses the light around.

Flesch Reading Ease: 92.96  
Flesch-Kincaid Grade Level: 3.2  
Corrected Dale-Chall: 5.5  
Fog: 5.3  
Powers: 4.2  
Smog: 5.4  
FORCAST: 7.8  
Fry Graph: 3

### Grade 4

The Milky Way galaxy stretches across the sky in the shape of a large wheel. It has many millions of stars in it. Our sun is only one little star out near the edge of the galaxy. When the moon is not shining, the galaxy does not look milky. With a pair of binoculars, it is possible to see stars in the Milky Way.

Earth is part of the Milky Way galaxy. To discover what our own galaxy is really like, scientists study other galaxies through powerful telescopes.

They know from these studies that galaxies turn and that stars circle around inside them. Planets may then circle around the stars, just as Earth revolves around its nearest star, the sun.

It is difficult to comprehend, or understand, how huge the Milky Way galaxy is. It is even more difficult to comprehend all the stars in it.

Flesch Reading Ease: 71.68  
Flesch-Kincaid Grade Level: 6.6  
Corrected Dale-Chall: 8  
Fog: 9.7  
Powers: 5.4  
Smog: 10.2  
FORCAST: 9.5  
Fry Graph: 7

### Grade 6

Black holes are probably the weirdest objects in space. They are created during a supernova explosion. If the collapsing core of the exploding star is large enough—more than four times the mass of our sun—it does not stop compressing when it gets as small as a neutron star. The matter crushes itself out of existence. All that remains is the gravity field—a black hole. The object is gone. Anything that comes close to it is swallowed up. Even a beam of light cannot escape.

Like vacuum cleaners in space, black holes suck up everything around them. But their reach is short. A black hole would have to be closer than one light-year to have even a small effect on the orbits of the planets in our solar system. A catastrophe such as the swallowing of the Earth or the sun is strictly science fiction.

From *Exploring the Sky* (Dickinson, p. 42)

Flesch Reading Ease: 77.16

Flesch-Kincaid Grade Level: 5.5

Dale-Chall Grade Level: 10

Powers Grade Level: 5.1

Fog Grade Level: 8.4

Smog Grade Level: 8.7

FORCAST: 9.3

Fry Grade Level: 6

### Grade 8

As we have seen, a neutron star would be small and dense. It should also be rotating rapidly. All stars rotate, but most of them do so leisurely. For example, our Sun takes nearly one month to rotate once about its axis. A collapsing star speeds up as its size shrinks, just as an ice skater during a pirouette speeds up when she pulls in her arms. This phenomenon is a direct consequence of a law of physics known as the conservation of angular momentum, which holds that the total amount of angular momentum in a system remains constant. An ordinary star rotating once a month would be spinning faster than once a second if compressed to the size of a neutron star.

In addition to having rapid rotation, we expect a neutron star to have an intense magnetic field. It is probably safe to say that every star has a magnetic field of some strength.

Flesch Reading Ease: 66.69

Flesch-Kincaid Grade Level: 8.3

Corrected Dale-Chall: 10

Fog: 12.1

Powers: 5.7

Smog: 11.2

FORCAST: 9.5

Fry Graph: 8

### Grade 10

William Herschel (1738-1822) and his sister, Caroline Herschel (1750-1848), carefully observed many binary star systems. They thought that many pairs of stars were associated with each other by gravitational forces that made them move in orbits around a common point. When they saw these orbital motions, they proved that Newton's law of gravitation operates outside our own solar system.

Most stars in our galaxy shine steadily, but more than 20,000 stars are called variables because their light output changes. Over half are pulsating variable stars that change periodically in size and brightness. Red variables take months or years between their brightest and faintest periods. It is interesting to observe the famous variable red supergiant Mira in Cetus. Because Mira changes from its maximum bright red to invisible, it was nicknamed "The Wonderful." Shorter period stars, such as the Cepheid variables, are less common but are important because their light output is used to measure distances in space. You can see the first known Cepheid variable, delta Cephei. It was discovered in 1784 by the teenage English astronomer John Goodricke two years before he died at the age of 21.

Flesch Reading Ease: 50.64

Flesch-Kincaid Grade Level: 10.5

Corrected Dale-Chall: 12

Fog: 12.6

Powers: 6.6

Smog: 11.9

FORCAST: 10.8

Fry Graph: 15

### Grade 12

In this way, a general explanation of the different types of galaxies begins to emerge. In an elliptical galaxy, the stars all formed before the gas had time to flatten into a disk; the more spheroidal the galaxy, the more rapidly this formation occurred. In a spiral galaxy, the stars of population II formed before the end of the flattening phase. When the gas was concentrated in the shape of a flat disk, the stars formed from the gas where the gas was located—i.e., in the disk. It remains to be explained why the formation of stars took place more rapidly in the elliptical than in the spiral galaxies. Inasmuch as we cannot explain in detail how stars form, it is not easy to answer that question. It seems that the rate of formation of stars is related to the density of the gas; the denser the gas, the faster the rate of formation of stars. Therefore, some people have believed that the density of the gas making up the protogalaxy was higher in elliptical galaxies than in spiral galaxies. However, when we consider the average density of matter, currently in the form of stars, that is contained in a galaxy, that average density does not seem to be significantly higher in the ellipticals.

From *Larousse Astronomy* (De la Cotardier, p. 229)

Flesch Reading Ease: 57.1

Flesch-Kincaid Grade Level: 9.7

Corrected Dale-Chall Grade Level: 12

Powers: 6.3

Fog Grade Level: 13.7

Smog Grade Level: 13.0

Fry Grade Level: 10

### Grade 14

To understand how we can have inflation, let us note that Einstein's general theory of relativity tells us that the rate of the universe's expansion is directly related to the density of matter and radiation in it, and since mass and energy are equivalent ( $E=mc^2$ ), this means that the universe's expansion is related to energy density; the higher the universe's energy density, the higher its rate of expansion; and conversely, the lower the energy density, the lower the rate of expansion. Because the early universe was very dense, it initially expanded very rapidly. (It had to or it wouldn't have expanded at all.) In the standard model for cosmological expansion, as time went on, the density decreased, and so the rate of expansion decreased. The reason that the density decreases is that the expansion adds space, so the mass energy is spread out over a larger and larger volume of space. The decrease in the energy density decreases the rate of expansion yet further. But the universe could inflate at a constant rate if somehow the density remained constant, so that even though the distance scale gets bigger, the amount of energy per unit volume remains the same.

Flesch Reading Ease: 41.37

Flesch-Kincaid Grade Level: 13.0

Corrected Dale-Chall: 15

Fog: 16.9

Powers: 7.2

Smog: 15.4

FORCAST: 11.1

Fry Graph: 14

### Grade 17

Since the invention of GUTs in 1974, particle theorists have been vigorously working on attempts to construct the ultimate theory of nature—an elegant theory which would include a quantum description of gravity. The characteristic energy scale of such a theory is presumably the Planck scale,  $10^{19}$ GeV, a point at which the gravitational interactions of elementary particles become comparable in strength to the other types of interactions. It is then hoped that a GUT would emerge as a low-energy approximation.

The latest and most successful of these attempts at unification is a radically new kind of particle theory known as 'superstring theory.' Superstrings represent a dramatic departure from conventional theories in that particles are viewed as ultramicroscopic strings (length =  $10^{-33}$  centimeters). Furthermore, according to this theory, the universe has *nine* spatial dimensions. Early in the history of the universe, when the temperature cooled below  $10^{32}$  degrees Kelvin, all spatial dimensions, except the three we know today, stopped expanding and remained curled up with an unobservably small extent. As bizarre as the theory may sound, the superstring theory has been shown to possess a number of unique properties crucial to a quantum theory of gravity, and it has totally captured the attention of a large fraction of the worldwide particle theory community.

From *Bubbles, Voids, and Bumps in Time: The New Cosmology* (Guth, pp. 143-144).

Flesch Reading Ease: 28.32

Flesch-Kincaid Grade Level: 15.8

Corrected Dale-Chall: 17

Fog: 19.5

Powers: 8.0

Smog: 16.4

FORCAST: 11.4

Fry Graph: (17)

## Narrative Social Studies Scale

### Grade 1

A horse clattered into the barnyard.

"It's Father!" Debby cried.

Before anyone could go to the door, Father was in the kitchen. Everyone was talking at once.

"Let Father talk," said Mother.

Father told them that the British were coming for the guns stored in Concord. "We believe," he said, "that they will march tonight. But when they get to Concord, they will find nothing there. We have moved the guns out. We have stored them in new hiding places in other villages. We have worked very hard."

Grandmother was frightened. "Then they will come up Lexington Road!" she said. "Quick! Put on your coats, children!"

Flesch Reading Ease: 90.37

Flesch-Kincaid Grade Level: 2.2

Corrected Dale-Chall: 6

Fog: 3.6

Powers: 4.2

Smog: 5.3

FORCAST: 9.1

Fry Graph: 2

### Grade 2

"Send Charles Darragh to me at once."

John sat stiffly in front of the uniformed man. It seemed like a year before Charles arrived.

"Why, John," Charles said in surprise.

John smiled. Now he could prove that he spied for General Washington.

"Mother sent me. I have some messages for General Washington."

John took the loose button from his pocket. "There is a message in Father's code hidden inside."

Charles uncovered the button. He took out the message and looked at it.

"Please decode the message right away," the tall man said.

"Don't, Charles," said John. "Only General Washington is supposed to know."

Charles laughed at his brother. "John, this is General Washington."

Flesch Reading Ease: 84.8

Flesch-Kincaid Grade Level: 3.1

Corrected Dale-Chall: 8

Fog: 5.5

Powers: 4.5

Smog: 7.2

FORCAST: 9.1

Fry Graph: 2

### Grade 3

Phoebe's mind was whirling as she hurried back toward the house. She was frightened, but she was also determined. She would save General Washington! She had long ago figured that he would likely be shot. During dinner he always sat in a chair by the window. He would make an easy target for anyone sitting outside.

If she could get him to change his place, away from that window! His good friend General Gates would be a dinner guest at the house this evening. Everyone else was part of the family or a member of the bodyguard. Over and over she said their names. No one's name began with a T.

Flesch Reading Ease: 80.75

Flesch-Kincaid Grade Level: 4.5

Corrected Dale-Chall: 6

Fog: 6.6

Powers: 4.8

Smog: 7.7

FORCAST: 9.5

Fry Graph: 5

### Grade 4

It was in the morning when Jonathan first heard the bell. He was standing in the warm, open field feeling hot, dirty and bored. His father, not far off, limped as he worked along the newly turned rows of corn. As for Jonathan, he was daydreaming, daydreaming about being a soldier.

His older brother was a soldier with General Washington in Pennsylvania. His cousin had joined a county regiment. Jonathan kept waiting for his father to say that he, too, could join. He was, after all, thirteen. But his father only put him off.

Jonathan dreamed of one day taking up a gun himself and fighting the enemy. For he had heard his father and his father's friends talk many times about the tyrannical British; their cruel mercenary allies, the German-speaking Hessians; and the hated Tories, those American traitors who had sided with the brutal English king.

Flesch Reading Ease: 66.45

Flesch-Kincaid Grade Level: 6.8

Corrected Dale-Chall: 8

Fog: 9.4

Powers: 5.6  
Smog: 9.4  
FORCAST: 10.4  
Fry Graph: 7

### Grade 6

Standing quietly in the crowd, he saw Sam Adams, pretending to be a most innocent bystander. It looked to Johnny as if the dog fox had eaten a couple of fat pullets, and had a third in his mouth.

As they started marching back to the center of town, they passed the Coffin House at the head of Griffin's Warf. A window opened.

"Well, boys," said a voice, so cold one hardly knew whether he spoke in anger or not, 'you've had a fine night for your Indian caper, haven't you? But mind... you've got to pay the fiddler yet."

It was the British Admiral Montague.

"Come on down here," someone yelled, "and we'll settle that score tonight."

The Admiral pulled in his head and slapped down the window.

Johnny and Rab knew, and men like the Observers knew, but the best of all Sam Adams knew, that the fiddler would have to be paid.

Flesch Reading Ease: 83.92  
Flesch-Kincaid Grade Level: 5.1  
Corrected Dale-Chall: 8  
Fog: 8  
Powers: 4.7  
Smog: 8  
FORCAST: 8.4  
Fry Graph: 6

### Grades 8

General Thomas Gage awoke before dawn one morning early in April 1775 and went to his office in Province House overlooking Boston Harbor. He paced back and forth, his hands clasped behind his back, deep in thought.

There was a lot to think about. On the desk lay reports from spies, "good" Yankees loyal to their king. Their reports detailed, among other things, the movements of John Hancock and Sam Adams. Both were preparing to attend the Second Continental Congress and would be staying with Hancock's relative, the Reverend Jonas Clark, at Lexington, a village twelve miles northwest of Boston. Five miles up the road, at Concord, patriots had stored enough supplies for a small army: muskets and cannon, barrels of gunpowder and bullets, tents, medicines, food, entrenching tools.

Gage made his plans carefully, telling as few people as possible of his intentions. On the eighteenth of April, Redcoats would be rowed across Boston Harbor under cover of darkness for a raid to capture the patriot leaders and destroy their supplies. With one swift blow Gage would smash the rebellion before it began.

From *The War for Independence* (Marrin, pp. 43-44).

Flesch Reading Ease: 61.9

Flesch-Kincaid Grade Level: 8.8

Corrected Dale-Chall: 12

Fog: 10.4

Powers: 6

Smog: 10

FORCAST: 10.9

Fry Graph: 9

### Grade 10

In July, through the offices of a friend (Dolly), I received a letter from John Hancock, now president of the Continental Congress, recommending my cousin Matthias Ogden and me to the attention of the recently appointed commanding general of the Continental Army, George Washington of Virginia.

I ought to mention that Dolly was appalled when news came to us that Washington had been chosen. "John was supposed to command the army. I don't understand it."

But then, at the time no one understood how Washington and his Virginia confederates had managed to wrest for themselves the leadership of what was essentially a New England array. Working together in perfect concert and displaying at all times the most exquisite loyalty to one another, the Virginians pushed to one side not only John Hancock but such talented commanders as Gates and Lee and Artemus Ward. As a matter of course, John Adams would betray his fellow New Englander John Hancock. Lacking personal loyalty to one another as well as any true policy, the New Englanders and the New Yorkers from the beginning gave over to the Virginia junto the American republic—and with relish the junto proceeded to rule us for the better part of a half-century.

Flesch Reading Ease: 40.37

Flesch-Kincaid Grade Level: 14

Corrected Dale-Chall: 17

Fog: 17.7

Powers: 7.3

Smog: 15.4

FORCAST: 10.9

Fry Graph: 14

### Grade 12

The missive was dated "Thursday evening, 9 o'clock, Nov. 4, 1773." The Loyal Nine had collaborated on the text, as usual, and perhaps the vengeful tone reflected the lingering sting of cuts and bruises suffered in the fracas at Clark's warehouse.

The tea consignees, despite what appeared to be overwhelming odds, didn't scare easily. If anything, their resistance stiffened.

Earlier on Thursday, the selectmen of Boston had issued a notice to the community to attend a special town meeting and next day to discuss this alarming affair. The selectmen had been persuaded to convene the townspeople to give formal expression to the community's sentiments regarding the tea,

especially since one of the consignees, and several of their friends, so the Gazette reported, had let it be known that if the harassed Gentlemen were asked properly, and not brutishly, they would indeed resign—a report evidently without substance.

On Thursday, also, Governor Hutchinson summoned his Council, the small, select upper body of the Provincial legislature, to meet with him to determine an official course of action. Hutchinson had no delusions regarding the degree of support he might expect from his Council, the members of which he knew to be predominantly anti-administration, but he felt that it was his duty to make the try.

Flesch Reading Ease: 39.5

Flesch-Kincaid Grade Level: 13.6

Corrected Dale-Chall: 12

Fog: 16.6

Powers: 7.3

Smog: 15

FORCAST: 11.3

Fry Graph: 14

## Expository Social Studies Scale

### Grade 2

At first there was the Pilgrim family.

Then more people came to this country. There were other bigger families.

These families were called COLONIES. There were thirteen colonies at one time.

Thirteen families.

Sometimes they did not get along together.

They quarreled.

The leaders thought the thirteen groups should live together as one family. How could this be done? What would hold the people together?

One day the leaders met in Philadelphia.

They came by boat, by horseback, by stagecoach, and on foot.

They wrote the CONSTITUTION.

Flesch Reading Ease: 76.06

Flesch-Kincaid Grade Level: 4.2

Corrected Dale-Chall: 5.0

Fog: 6.2

Powers: 5.0

Smog: 8.3

FORCAST: 9.5

Fry Graph: N/A

### Grade 3

When the British were coming to Philadelphia, the Liberty Bell was taken down from its tower. It was hidden under the floor of a church so that no enemy soldiers could find it.

The Congress had to move from Philadelphia to another city—and another—and another. Always the Declaration of Independence went with them. The Declaration was taken to many different places. Once it even spent the night in a barn.

It was a dark and sad time for the United States of America. But some of the countries across the sea in Europe sent help.

Flesch Reading Ease: 62.99

Flesch-Kincaid Grade Level: 7.4

Corrected Dale-Chall: 7

Fog: 10.2

Powers: 5.8

Smog: 10.2

FORCAST: 9.7

Fry Graph: 8

### Grade 4

When the Revolutionary War started in 1776, Americans fought under many different flags. One flag had a pine tree on it and the words, "An Appeal to Heaven." Another had a rattlesnake and the words "Don't Tread On Me." Others had "Liberty or Death" or "Conquer or Die."

The new flag had thirteen stripes—seven red and six white—and thirteen white stars on a field of blue. No one knows who designed this flag or made the first one.

According to one story, the first flag was made by Betsy Ross. It is true that Betsy Ross did sew flags during the Revolutionary War. And she lived in Philadelphia. Her house is now a national shrine. But there is no proof that she made the first official American flag.

Flesch Reading Ease: 74.8

Flesch-Kincaid Grade Level: 5.8

Corrected Dale-Chall: 7

Fog: 9.3

Powers: 5.2

Smog: 9.4

FORCAST: 8.4

Fry Graph: 7

### Grade 6

During nearly two centuries of British rule, the colonists' attitude toward England gradually changed. The early colonists had regarded themselves as English people who happened to live across the ocean from their mother country. For the most part they had been content to be ruled by lawmakers and governors sent from England. The children and grandchildren of these early

colonists wanted more of a say in their government, and so England had allowed them to elect assemblies with limited powers. By the 1760s, this was not enough for many colonists. A few were even in favor of the colonies separating from England and becoming a new country.

There were several reasons for these growing feelings. By the mid-1700s, the colonies were home to many thousands of less-wealthy English people and to thousands more who had come from such countries as Ireland, Scotland, Germany, the Netherlands, France, and Sweden. Most of these people had never been to Great Britain, did little or no business with the British, and felt little loyalty to England.

Flesch Reading Ease: 56.64

Flesch-Kincaid Grade Level: 10.4

Corrected Dale-Chall: 10

Fog: 12.1

Powers: 6.4

Smog: 12.1

FORCAST: 11.3

Fry Graph: 11

### Grade 8

The London merchants began to worry. To save themselves, they demanded that Parliament repeal the Stamp Act. Benjamin Franklin, representing the colonies in London, went to the House of Commons and warned the British that they were on the road to ruin. If they did not change their policies, there would very likely be rebellion. The Americans, he explained, dearly loved their Mother England, but they loved their liberties even more.

The rulers of Britain might still have saved the situation. If they had known the colonists better, they would have realized that Americans would not let their lives be run by others. A shrewder British government might have worked out a cooperative empire. Then there might never have been a War of Independence. But the rulers of Britain were near-sighted and short-sighted. They thought that government by Parliament had to be all-or-nothing. Unlike the Americans, they were not willing to compromise.

Flesch Reading Ease: 61.52

Flesch-Kincaid Grade Level: 7.8

Corrected Dale-Chall: 10

Fog: 9.3

Powers: 5.9

Smog: 10.6

FORCAST: 10.1

Fry Graph: 9

### Grade 10

Americans who were loyal to Britain during the Revolutionary War were called Tories, or Loyalists. They supported the right of Britain to rule the Colonies. This does not mean that they approved of the Crown's treatment of the Colonies. Many, like the rebel patriots, were for individual liberties and against

taxation without representation. But the Loyalists recognized the king's ultimate authority in America.

About five hundred thousand Americans (fifteen to thirty-six percent of the white population) remained loyal to Britain between 1775 and 1783. In 1780, John Adams believed that five percent of Americans were loyal, but he revised his estimate in 1815 as he reflected on the struggle for independence. He concluded that about one-third of the people opposed the Revolution. Loyalism was weakest in the oldest, best-established colonies, such as Connecticut and Virginia. But although Loyalists were a minority in every colony, there were enough of them to forestall an American victory.

Colonists chose Loyalism for many reasons. Although there were exceptions, most Loyalists were landowners, professionals or government officials, and many were wealthy. In many cases they remained loyal in an attempt to preserve their standing in the community.

Flesch Reading Ease: 35.43

Flesch-Kincaid Grade Level: 12

Corrected Dale-Chall: 14

Fog: 14

Powers: 7.4

Smog: 13.4

FORCAST: 12

Fry Graph: N/A

## Grade 12

Events like Lexington and Concord, followed by the larger battle at Breed's Hill, cut sharply through the strata of American society. Many men who previously had accepted things as they were now had to declare themselves for or against independence. Conservatives and, in general, those who held offices in America struggled to maintain the connection with England. They angered those who regarded war as the only course, and with each violent incident the breach widened. Radical leaders like Sam Adams, who had urged independence for nearly a decade, seized upon the division and fanned the flames of revolution to white heat. Another firebrand, Thomas Paine, published his pamphlet *Common Sense*, and at once it became a best seller. The propagandist, as always, had put into words what many men had been thinking but could not say.

The British seemed continually to provide reasons for colonial charges against them. The king had already announced that blows must decide the issue, and when he received what was called the Olive Branch Petition from the colonies, he rejected it, stigmatizing all Americans as disloyal. The moderate William Pitt proposed a compromise, but Parliament rejected it.

Flesch Reading Ease: 48.11

Flesch-Kincaid Grade Level: 11.3

Corrected Dale-Chall: 12

Fog: 13.7

Powers: 6.8

Smog: 13.1

FORCAST: 10.9

Fry Graph: 12

### Grades 15

Beginning in 1740, a series of crises undermined the stability of these established political and social orders. Religious turmoil, war with France, and an economic cycle of boom and bust struck in rapid succession. Britain's sudden imposition of new measures of taxation and control prompted riots, petitions, and the movement for American independence. By 1775, many colonists had repudiated British rule and the traditional monarchical system of government. Many other Americans actively questioned the authority of existing religious institutions and the legitimacy of established political and social distinctions. The struggle for home rule raised the crucial question of who should rule at home.

Between 1776 and 1820, the citizens of the new United States created a republican institutional order. While fighting a financially draining war against Great Britain, they devised effective state constitutions and governments. Subsequently, they organized themselves into a strong national union and began the expansion into the trans-Appalachian west. Americans debated, argued, and even fought bitterly with one another during these years. They were divided into distinct social groups, each seeking to defend or extend its own values and interests.

In the end, American Revolution had both radical and conservative results.

From *Evolution and Revolution: American Society, 1600-1820* (Henretta and Nobles, p. 248)

Raw Dale-Chall 15

Flesch Reading Ease: 26.46

Flesch-Kincaid Grade Level: 13.6

Fog Grade Level: 16

Powers: 7.9

Smog Grade Level: 14.5

Forecast 12.6

Fry: N/A

### Grade 17

What does lie at the core of the consensus that sustains the Congress, the Philadelphia Convention, the Federalist, and we must add now, the first Congress? It is, he insists, an agreed-upon public philosophy, stated in propositional form (e.g., but only e.g., all men are created equal), and propositional in both of the two senses of that ambiguous word "proposition": that of a truth that is asserted (as self-evident, as demonstrated, or as demonstrable); and that of an intention to be realized, an operation to be performed (as when we say: I propose to, etc.)—that, then, on the one hand, of a doctrine, and that, on the other, of a project, but claiming assent on grounds of reason. He will attempt, as he proceeds, to identify the content of the proposition; but sound methodology, as he understands it, requires that we should first be clear as to the kind of proposition it is and the kind of proposition it is not, and his theses here are, as I believe, theses of the first importance for the contemporary conservative movement, if it is to relate itself correctly to the origins of the tradition that it purports to cherish.

Raw Dale-Chall 12

Reading Ease 49.78

Flesch Grade 11.8

Fog Grade Level 14.6

Powers: 6.8

Smog Grade Level 13.2

Forecast 9.6

Fry 11