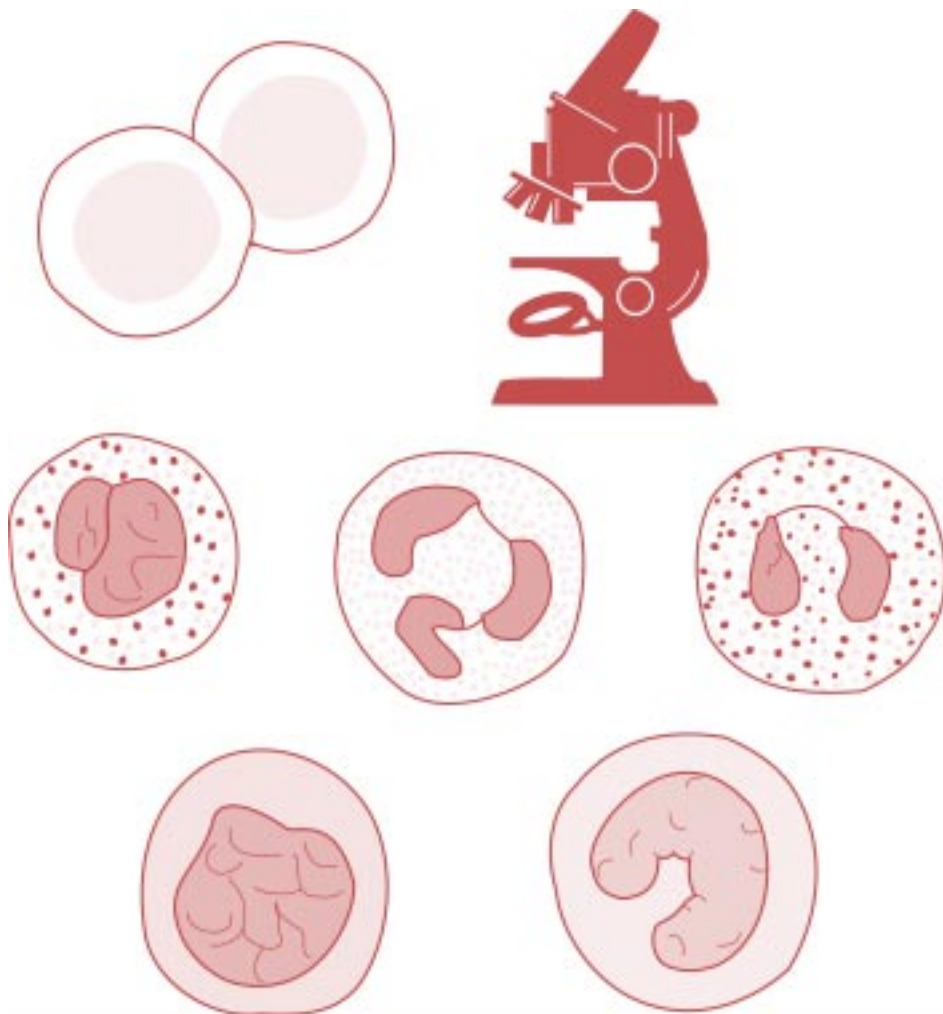


*Designing Your
Own School Program*

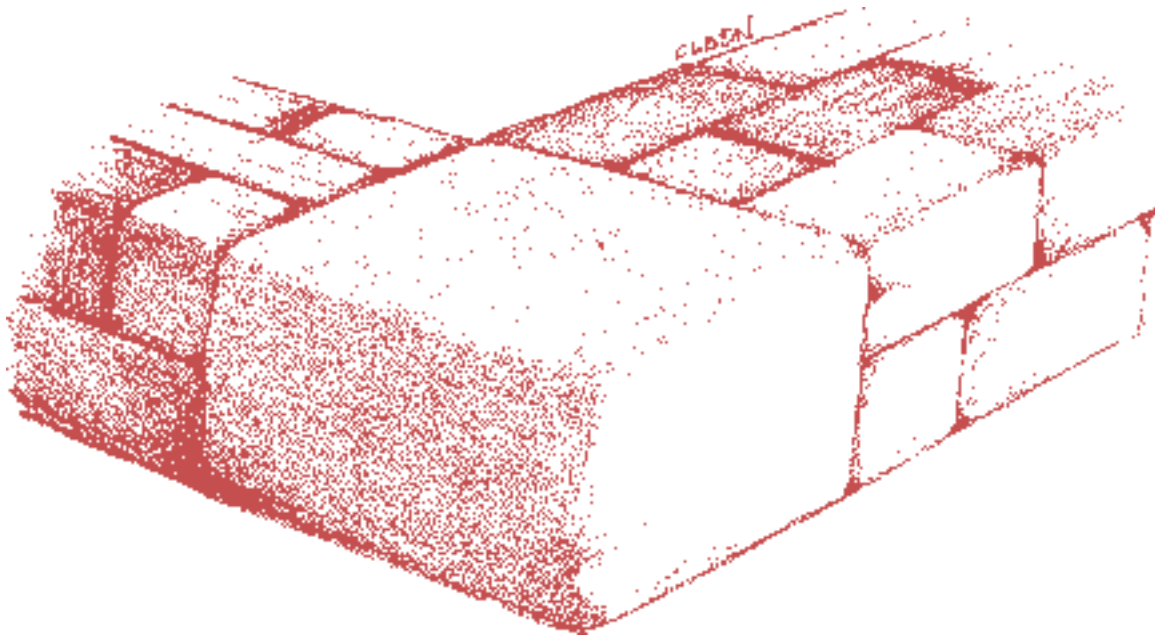
6

Cells



A "True Education" Health Series

*“Ye also, as lively stones,
are built up a spiritual house,
an holy priesthood,
to offer up spiritual sacrifices,
acceptable to God by Jesus Christ.”
I Peter 2:5*



**Printed by SEM
627 Highland Loop Rd.
Kettle Falls, WA 99141**

Copyright © 1995
SonLight Education Ministry
P.O. Box 518
Colville, WA 99114

Teacher Section



Table of Contents

Teacher Section **Pages 1-14**

Student Section **Pages 1-52**

Research

Building Blocks	Page 1
Living Stones	Page 2
“Typical Cell”	Page 2
Cell Life	Page 2
Servants	Page 3
Remind	Page 3
Structure	Page 4
Cytoplasm	Page 4
Reproduction	Page 5
Reflect	Page 5
Reinforce	Page 7
Review	Page 7
Reinforce	Page 8
“Beginning the New Year Well” – Story	Page 9
Reinforce – “The Golden Rule”	Page 11
Remind/Reinforce	Page 12

Research

Chromosomes	Page 13
DNA	Page 13
“Chromosomes and DNA” – Illustrations	Page 13
Genes	Page 14
Reinforce	Page 14
A Ladder	Page 15
“Steps of Integrity ” – Poem	Page 15
Reflect – “What DNA Can Call To Mind”	Page 16
Review	Page 17

Table of Contents

Reinforce	Page 18
Remind	Page 18

Research

Other Organelles	Page 19
Reinforce	Page 19
Largest Cell	Page 20
Reinforce – “Human Nature”	Page 20
“Jesus” – Poem	Page 21
Reinforce	Page 22
Review	Page 22
Remind	Page 22
Mark Your Bible – “Christ Took Human Cells”	Page 23
Reflect	Page 24

Research

Replacing Cells	Page 25
Renewal	Page 25
Remind	Page 26
“Cell Division”	Page 26
Reinforce	Page 27
Conversion	Page 28
Renew	Page 28
Reinforce	Page 28
Growth	Page 29
Reinforce	Page 29
“The Lord Looketh on the Heart” – Story	Page 30
Fuel	Page 31
Reinforce	Page 31
Reflect	Page 31
Review	Page 32
Remind	Page 33

Table of Contents

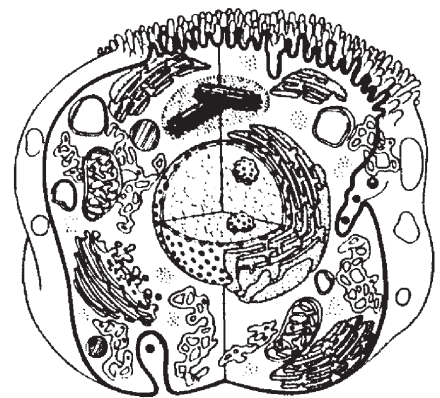
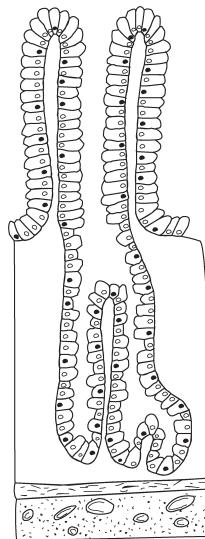
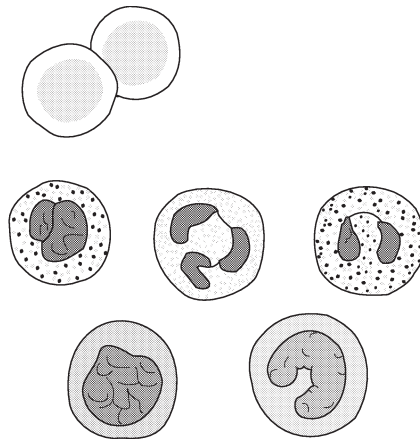
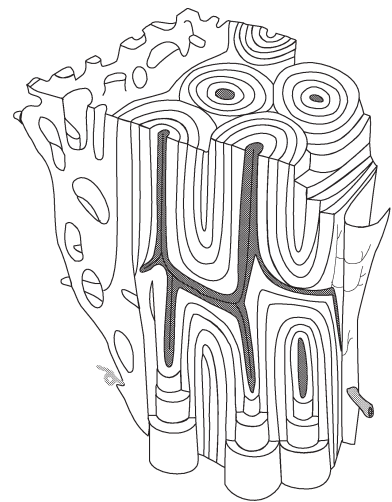
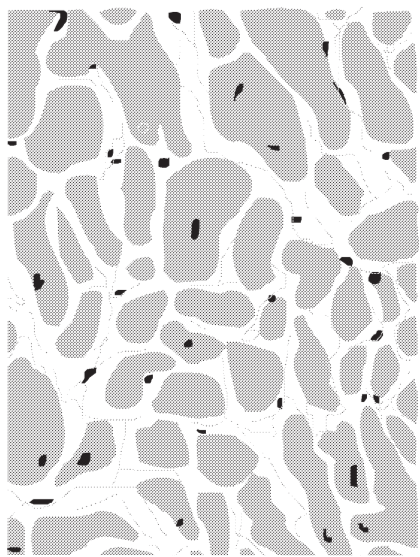
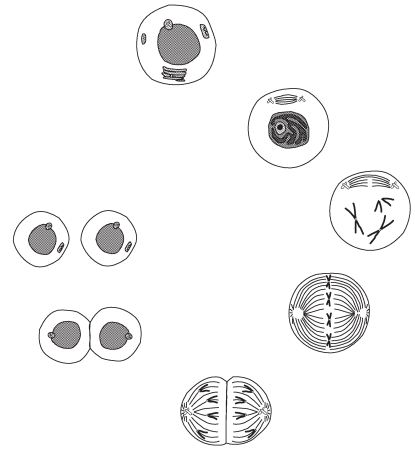
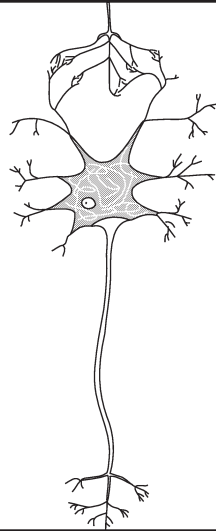
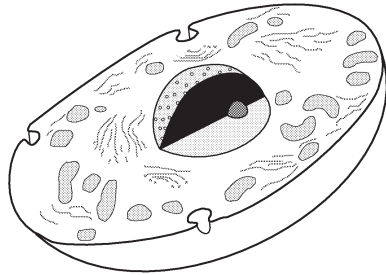
Research

Shapes	Page 34
Lifetime of Cells	Page 36
“Nerve Cell” – Illustration	Page 36
Reinforce	Page 37
Remind	Page 37
Cancer	Page 38
Viruses	Page 40
Seven Warning Signs of Cancer	Page 40
Damaged Cells	Page 41
Reinforce	Page 41
Review	Page 41
Remind	Page 42

Research

Harmony	Page 43
The Kindness of the Cells	Page 44
Community	Page 44
Reinforce	Page 45
“Her Gift Saved Livingstone” – Story	Page 46
Review	Page 47
Reinforce	Page 47
Remarkable Facts	Page 47
“Cells” – Mark Your Bible	Page 48
Reflect	Page 49
“History of the Cell” – Article	Page 50
Reflect	Page 51
“Cells” – Poem	Page 51
“ Integrity ” – Thought	Page 52

Cells, Cells, Cells





INSTRUCTIONS

For the Teacher

Step 1

Study the Bible lesson and begin to memorize the memory verses. Familiarize yourself with the character quality.

The student can answer the Bible review questions. See page 6. Use the steps in Bible study.

Bible Lesson

“We Have Seen His Star” –
Matthew 2

Memory Verses

Numbers 24:17; Jeremiah 29:11-14;
Micah 5:2; Isaiah 49:6;
Matthew 2:23

Character Quality

Integrity – complete honesty and sincerity; wholeness; entireness; unbroken state; moral soundness or purity; incorruptness; uprightness; honesty

Antonyms – duplicity; deceit; dissimulation; guile; dishonesty; deceitfulness; mendacity; perversity

Character Quality Verse

Proverbs 11:3 “*The integrity of the upright shall guide them: but the perverseness of transgressors shall destroy them.*”

Step 2

Understand How To/And

A. Do the spelling cards so the student can begin to build his own spiritual dictionary.

B. Mark the Bible.

C. Evaluate your student’s character in relation to the character quality of **integrity**.

D. Familiarize yourself with the cells of the body, and how they work. Notice the projects.

E. Review the Scripture references for "Cells."

F. Notice the Answer Key.

A. Spelling Cards

Spelling Lists

Health Words

Place I

blocks
building
cancer
cell
cytoplasm
genes
harmony
nucleus
structure
shapes

Place II - III

blocks
building
cancer
cell
cellular
chromosomes
cytoplasm
genes
harmony
membrane
nuclear

nucleolus
nucleus
organelles
protoplasm
renewal
shapes
structure

Place III

DNA
(deoxyribonucleic acid)
golgi bodies
lysosomes
mitochondria
oncogenes
ribosomes

Bible Words

comfort
demanded
departed
destroy
dream
Egypt

See the booklet *Spelling from the Scriptures* for instructions about how to make the Spelling Cards.

Bible Words continued

flee	Nazarene
frankincense	Rachel
gold	search
governor	star
integrity	treasure
joy	troubled
Judea	weeping
lamentation	wise men
mock	worshiped
myrrh	wroth

B. How to Mark the Bible

1. Copy the list of Bible texts in the back of the Bible on an empty page as a guide.
2. Go to the first text in the Bible and copy the next text beside it. Go to the next one and repeat the process until they are all chain referenced.
3. Have the student present the study to family and/or friends.
4. In each student lesson there is one or more sections that have a Bible marking study on the subject studied. (See the student's section, pages 23 and 48.)

Place I = Grades 2-3-4

Place II = Grades 4-5-6

Place III = Grades 6-7-8

C. Evaluate Your Student's Character

This section is for the purpose of helping the teacher know how to encourage the students in **integrity**.

See page 8.

D. Familiarize Yourself With How the Cells Works – Notice the Projects

Projects

1. Choose a task at which the whole family can work together (such as planting a garden). The father should assign each member of the family to a specific task, such as: one puts stakes at the end of the rows, one puts string on the stakes to make rows, one digs the rows, one plants the seeds, one covers the seed (or use another project of your choice). Father (the priest of the family standing as a representative of Jesus) is like the nucleus of this family "cell," directing each part of the "cell," that all might work together. Remind the student of the Bible lesson and how each part of

the cell works together, and each cell works with the other cells.

2. Use a magnifying glass to look at an orange cut in half. The fibers that you see are cells. The juice that ran out when you cut it is from the cells.

3. Walk in nature and find lessons on cells. Take a picture with you on your walk of a plant cell that you cannot see with the naked eye. A tree has millions and millions of cells you cannot see, and they all work together. The nucleus give the commands and the cells obey. The whole universe works in cooperation with God, and only one cell (this world) is out of order.

4. Draw a diagram of a cell and label its parts using the spelling words. Beneath the drawing the student can write a Bible verse that he found that reminds him of the nucleus in the cell. (A synonym for nucleus is "midst.")

The student could draw several types of cells.



E. Review the Scripture References for “Cells”

Teacher, read through this section before working on the lesson with the student.

See pages 9.

F. Notice the Answer Key

The answer key for the student book is found on page 11.

Step 3

Read the Lesson Aim.

Lesson Aim

The plan of this lesson is to point the child to Jesus through the character quality of **integrity**. The child must also have **integrity** if he is to seek Jesus as the wise men did many years ago. In each cell lies a sphere called the nucleus. The cell

teaches us how important it is, once we find Jesus, to have Him as the nucleus of our lives. Then, we can learn how the many cells work together, each with a nucleus (Jesus) directing them. Cells are the building blocks of the body temple, and they make up tissue, organs, and body systems.

Some call the cell the basic unit of life. Our bodies are made up of many different types of cells. The nucleus controls the cell's activities, just like the honest wise men were controlled by the Holy Spirit.

The nucleus controls: (1) how the cell uses **food** and oxygen, (2) how the cell gets rid of **waste**, and (3) how the cell **reproduces**.

In like manner, the Holy Spirit was able to help these wise men of **integrity** (1) find **spiritual food** through the Hebrew scrolls, and how to use it to find Jesus; (2) to understand that to go back to Jerusalem would be a **waste**, and (3) to go home and **share** what they had learned.

Without the nucleus the cell would die. Without Jesus, the Holy Spirit, and the Father, we would die spiritually. The Holy Spirit led these wise men of **integrity** to Jesus.

If you have not found Jesus, and you are truly searching for Him, the Holy Spirit will lead you to Him.

Step 4

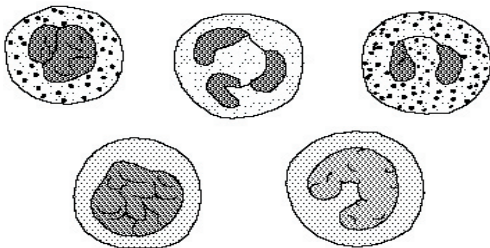
Prepare to begin the Cells Lesson.

To Begin the Health Lesson

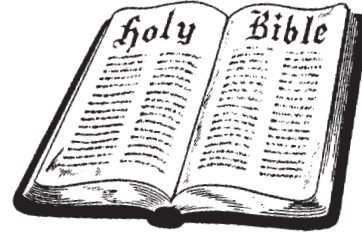
As an introduction to the lesson, it would be helpful if the teacher could have the student view a human cell through the microscope.

Step 5

Begin the Cells Lesson. Cover only what can be understood by your student. Make the lessons a family project by all being involved in part or all of the lesson. These lessons are designed for the whole family.



Steps in Bible Study



1. Prayer
2. Read the verses/meditate/memorize.
3. Look up key words in *Strong's Concordance* and find their meaning in the Hebrew or Greek dictionary in the back of that book.
4. Cross reference (marginal reference) with other Bible texts. An excellent study tool is *The Treasury of Scripture Knowledge*.
5. Use Bible custom books for more information on the times.
6. Write a summary of what you have learned from those verses.
7. Mark key thoughts in the margin of your Bible.
8. Share your study with others to reinforce the lessons you have learned.

Review Questions

1. Where was Jesus born, and who was king at this time? (Matthew 2:1)
2. Who came to see Jesus? From what direction? (Matthew 2:1)
3. For whom did they ask? What had they seen? (Matthew 2:2)
4. For what reason had the wise men come to see Jesus? (Matthew 2:2)
5. Who was troubled by the question of these men? (Matthew 2:3)
6. Whom did he gather together? (Matthew 2:4)
7. What did he demand of them? (Matthew 2:4)
8. Where did they say Jesus was to be born? (Matthew 2:5-6)
9. How did they know? Quote where they got their information from. (Micah 5:2)
10. What did Herod inquire of the wise men? (Matthew 2:7)
11. To what place did he send them? (Matthew 2:8)
12. What did he tell them to do? (Matthew 2:8)
13. How did they find Jesus? (Matthew 2:9)
14. How did they respond when they saw the star again? (Matthew 2:10)
15. Whom did they worship? (Matthew 2:11)
16. Name the gifts that they presented. (Matthew 2:11)
17. How were the plans of Herod defeated? (Matthew 2:12-15)
18. When did Joseph start for Egypt? (Matthew 2:13-14)
19. How long did he remain in Egypt? (Matthew 2:15, 20)
20. How was Herod's death made know to Joseph? (Matthew 2:19)
21. Where did Joseph and his family dwell after they left Egypt? (Matthew 2:23)
22. Why was he afraid to go into Judea? (Matthew 2:21-22)

23. How was the prophecy, “*He shall be called a Nazarene,*” fulfilled? (Matthew 2:23)

Thought Questions

24. How many wise men were there? (It is not stated in Scriptures.)

25. What does the Bible say in regard to the type of building Jesus was in at the time of the visit of the wise men? (Greek “house” – *Strong’s Concordance* number 3614 = residence, an abode, a family [especially a domestic home])

26. What was the star that guided the wise men to the place of Jesus’ birth? (It is not stated in Scripture, but some say it was the angels that appeared to the shepherds on the night of Jesus’ birth.)

27. What Bible reference proves that it was a part of God’s plan for Jesus’ parents to take Him to Egypt? (Hosea 11:1; Jeremiah 31:15; Matthew 2:16-18)

Wise Men



Evaluating Your Child's Character

Check the appropriate box for your student's level of development, or your own, as the case may be.

Maturing Nicely (MN), Needs Improvement (NI), Poorly Developed (PD), Absent (A)

Integrity

1. Does the child keep his word, even when it hurts to do so?

MN **NI** **PD** **A**

5. When any work is assigned to the child, does he go forward as steadily and industriously when he is not watched as when he is?

Yes **No**

2. Are the child's heroes people of integrity?

Yes **No**

3. Is the child able to stand alone on the side of right even when it means unpopular treatment?

MN **NI** **PD** **A**

4. Is the child completely honest and sincere in speech and actions?

MN **NI** **PD** **A**

Notes

Scripture References

Cells (Indirect)

1. Cells are the building blocks of the body. People are the “lively stones” of the spiritual body called the church.

I Peter 2:5 – *“Ye also, as lively stones, are built up a spiritual house, an holy priesthood, to offer up spiritual sacrifices, acceptable to God by Jesus Christ.”*

2. The body has many cells, which compose its organs and tissues.

I Corinthians 12:14 – *“For the body is not one member, but many.”*

3. Cells grow.

Ephesians 2:21-22 – *“In whom all the building fitly framed together groweth unto an holy temple in the Lord:*

“In whom ye also are builded together for an habitation of God through the Spirit.”

4. Cells are renewed.

Psalms 103:5 – *“Who satisfieth thy mouth with good things; so that thy youth is renewed like the eagle’s.”*

5. The renewal of the cells has spiritual parallels.

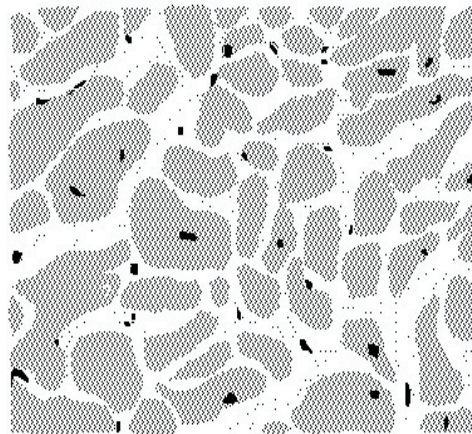
John 3:7 – *“Marvel not that I said unto thee, Ye must be born again.”*

Revelation 21:5 – *“And he that sat upon the throne said, Behold, I make all things new. And he said unto me, Write: for these words are true and faithful.”*

6. Old cells are replaced by new ones.

II Corinthians 6:9 – *“As unknown, and yet well known; as dying, and, behold, we live; as chastened, and not killed.”*

Ephesians 4:23-24 – *“And be renewed in the spirit of your mind;*



“And that ye put on the new man, which after God is created in righteousness and true holiness.”

7. Cells are sensitive to each other.

I Corinthians 12:26 – *“And whether one member suffer, all the members suffer with it; or one member be honoured, all the members rejoice with it.”*

8. Cells help each other.

Galatians 5:13 – *“For, brethren, ye have been called unto liberty; only use not liberty for an occasion to the flesh, but by love serve one another.”*

Galatians 6:2 – *“Bear ye one another’s burdens, and so fulfil the law of Christ.”*

9. Most cells are pliable.

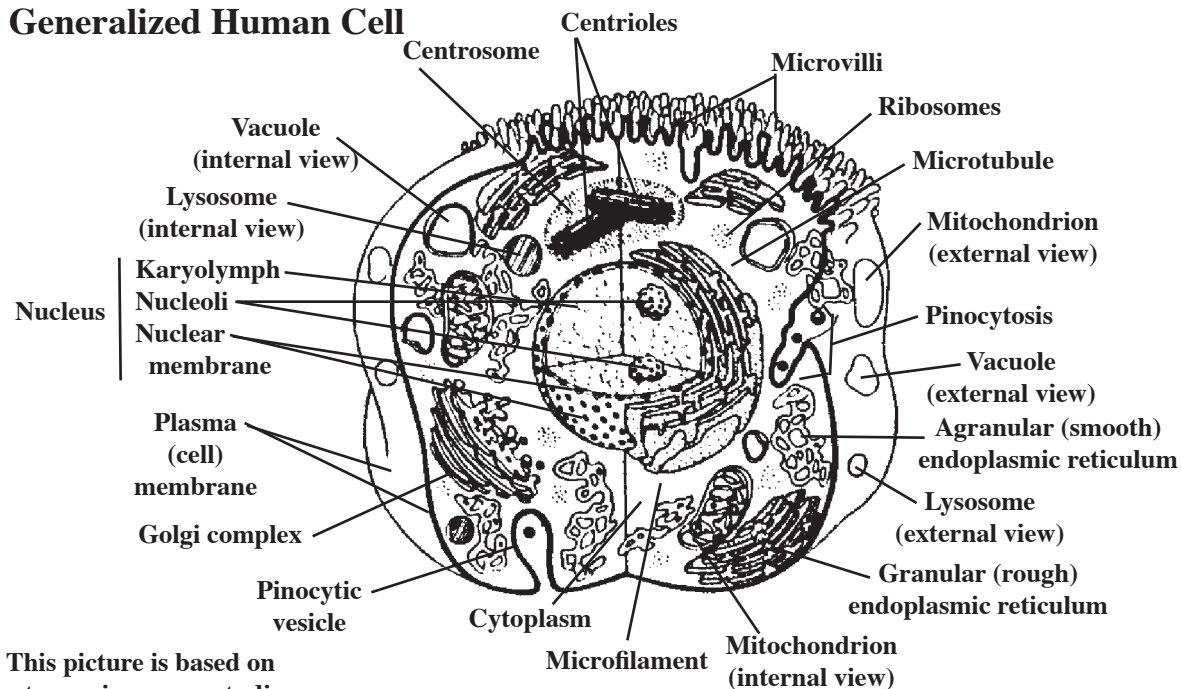
Jeremiah 18:6 – *“O house of Israel, cannot I do with you as this potter? saith the LORD. Behold, as the clay is in the potter’s hand, so are ye in mine hand, O house of Israel.”*

10. Jesus took on human cells at the incarnation.

John 1:14 – *“And Word was made flesh, and dwelt among us, (and we beheld his glory, the glory as of the only begotten of the Father,) full of grace and truth.”*

Illustration

Generalized Human Cell



This picture is based on electron microscope studies.

Answer Key

Page 7

1. The story of the feeding of the five thousand found in Matthew 14:13–23 or four thousand found in Matthew 15:30–38.

1. cell membrane, cytoplasm, and nucleus

2. The principle of multiplication through self-sacrifice.

3. **cell membrane** – protects the cell, and controls substances entering and leaving the cell

cytoplasm – fills the cell

organ – group of tissues working together

nucleus – directs the cell's activities

tissue – a group of similar cells that work together

system – a group of organs working together

Plants or animals have one thing in common they are all made up of cells.

Page 8

Thought Questions

4. Love should hold Christians together. It would only lead to hypocrisy if laws were passed to force people to go to church.

5.

1- Satan could cause a person to die spiritually even though the forms of religion were still observed.

2- He could also bring in measures that would be designed to restrict the freedom of the church members to do good things without the permission of church leaders or government authorities, etc.

6. God gives each person unique talents and aptitudes that will be involved in the work He has planned for them.

Page 17

1. DNA

2. Spiral or twisted ladder shape; Peter's Ladder of sanctification.

Answer Key

Page 17 continued

3. Some hereditary information comes from the father and some from the mother.

4. c, d, f, g, h, i

5. heredity

6. **a. gene** – 3. the part of a chromosome that determines a single inherited trait

b. chromosome – 1. strands of material that carry the coded messages from inherited traits

c. DNA – 2. the chemical within chromosomes that has the coded messages of heredity

7. in the nucleus

Page 22

1. By cell division.

2. female egg cell

3. the size of a pin head

Page 28

new

Page 31

Armpit temperature is warmer than the room temperature. It tells us that body temperature is kept optimally constant to meet its functions.

Page 32

1.

1. to **absorb food** elements

2. to **make the food the blood stream brings over** nutrients **into** some **part** of the **body**

3. to **gather up waste** and **cast it out** so there is **room for new material**

4. to **increase** the **size** of the **organ** or **tissue they are part of**

Page 33

2. In mature adults who have completed their growth, the cells only have to remove worn-out matter and put in new. But children are growing all the

Answer Key

Page 33 continued

time, so, in them, the cells must .lbe continually adding new material.

3. Teacher, check. (Plants need light, food, and water and so do boys and girls. Spiritually, boys and girls grow by receiving and using the gifts and blessings God provides. They should open their souls to the light of the Holy Spirit as a plant spreads out its leaves to the sun. They can take in God's word and grow like a plant takes in the rain. Plants receive certain elements from the air and they give off oxygen. This illustrates prayer.)

4. See page 28.

Page 41

1. Cells can go wild and multiply without stopping, or can get taken over by a virus, etc.

2. They were not ministering to the needs of the body of worshippers. They took tithe money but did not feed the people spiritually.

3. Drugs

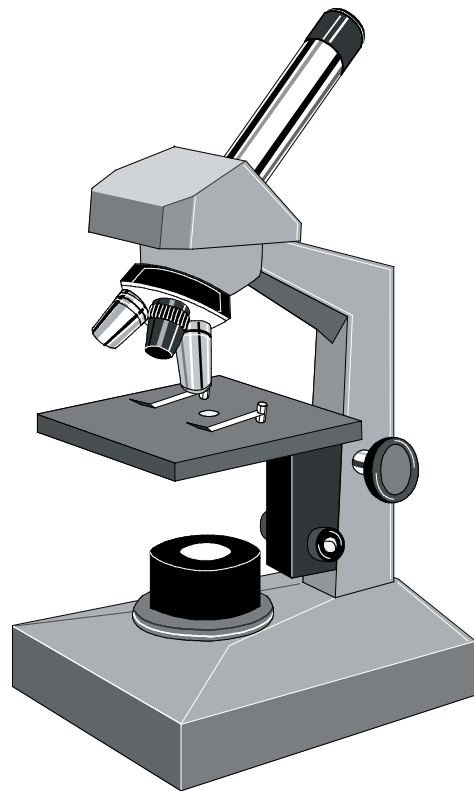
Page 41 continued

4. They can crowd out healthy cells and keep them from functioning.

Page 47

1. Teacher, check.
See page 43 for ideas.

2. healthy



Bible Examples of Integrity

Abraham's character was marked for integrity, generosity, and hospitality. He commanded respect as a mighty prince among the people. His reverence and love for God, and his strict obedience in performing His will, gained for him the respect of his servants and neighbors. His godly example and righteous course, united with his faithful instructions to his servants and all his household, led them to fear, love, and reverence the God of Abraham.

In the history of Joseph, Daniel, and his fellows, we see how the golden chain of truth may bind the youth to the throne of God. They could not be tempted to turn aside from their course of integrity. They valued the favor of God above the favor and praise of princes, and God loved them and spread His shield over them. Because of their faithful integrity, because of their determination to honor God above every human power, the Lord signally honored them before men. They were honored by the Lord God of hosts, whose power is over all the works of His hand in heaven above and the earth beneath. These youth were not ashamed to display their true colors. Even in the court of the king, in their words, their habits, their practices, they confessed their faith in the Lord God of heaven.



Gardening Sheet



Lesson Six Subject Health

Title “Cells”

In Season

*(This is for In Season
and Out of Season.)*

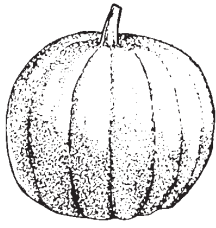
The majority of plants reproduce their kind through their seeds. This was the plan in the beginning. *“And the earth brought forth grass,” “the herb yielding seed, and the fruit tree yielding fruit after his kind, whose seed is in itself, upon the earth: and it was so”* (Genesis 1:12, 11).

When mankind sinned and God wished to teach them the lessons of redemption in a way that they could understand, He told him of the Messiah to come under the figure of a seed, the Seed of the woman. As Adam and Eve left the garden of Eden it would be necessary for them to plant seeds and cultivate them, that they might have food. As the seed was placed in the ground, and under the influences of moisture and the warmth of the sun, the seed began to send

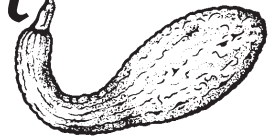
Out of Season

forth roots into the hard, dark earth below, and leaves into the sunshine and fresh air, they doubtless caught at least a glimpse of the One who was to link earth to heaven; the One, who though living and drawing His physical support and nourishment from the dark, sordid world, nevertheless grew into the perfection of beauty and lived in the sunlight of heaven.

If possible, obtain a piece of highly polished limestone or marble. These can usually be purchased from the agents who sell tombstones. The ordinary samples they have are about the right size. If a piece of highly polished granite is more convenient to purchase, it will do almost as well. Place the stone in the bottom of a shallow box, with the polished side up. Now lay three or four large pumpkin or squash seeds on the stone at a distance of an inch or two (2.5-5 centimeters) apart, and cover all an inch



Gardening Sheet

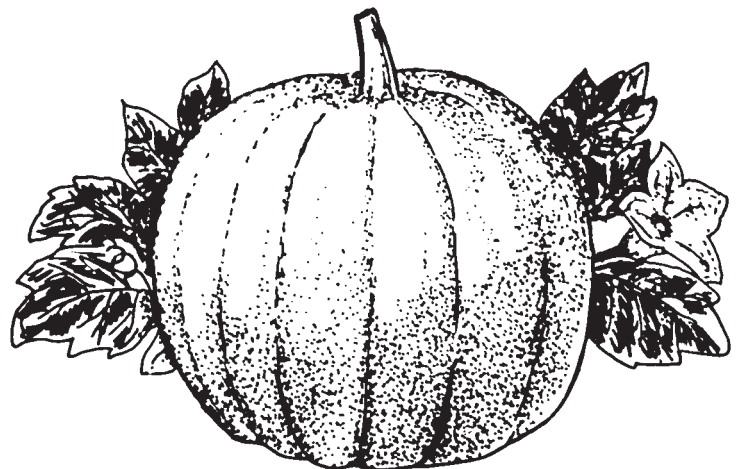
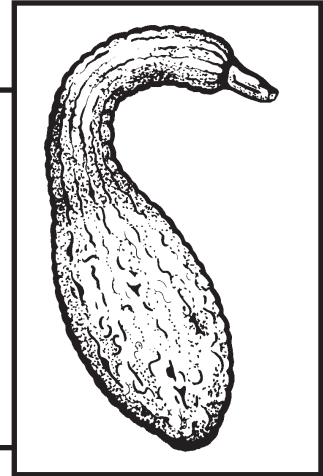
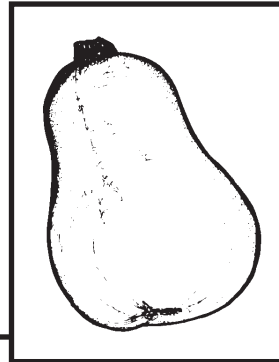


"Cells," continued

or more deep with sand or sawdust. For this reason possibly sawdust is better, as it will readily hold sufficient moisture to cause the seeds to germinate and grow, and at the same time, keep the stone cleaner. If pumpkin or squash seeds are not available, you may use beans or corn.

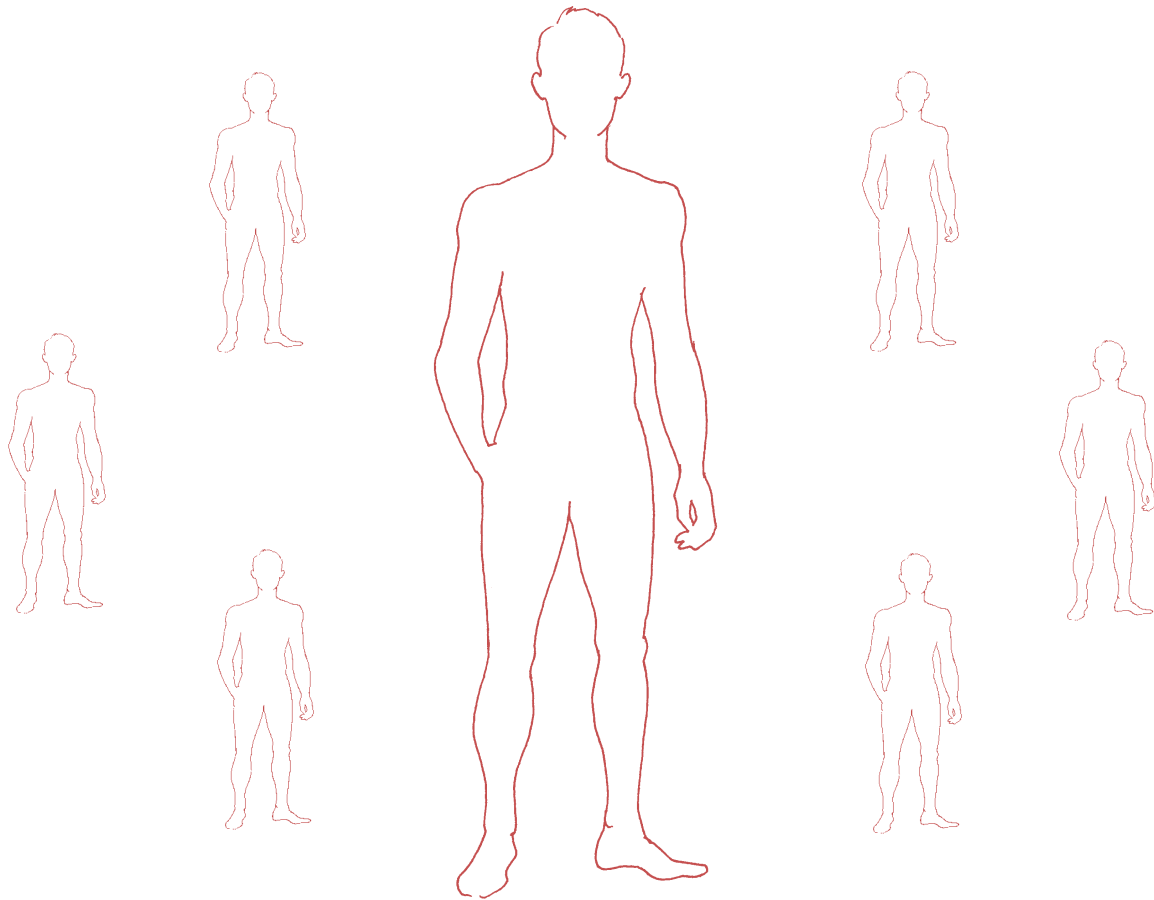
Put this box in a warm, sunny place, and keep it moist until the young plants have made three or four pairs of leaves. Now remove the plants, along with the sawdust, and look carefully at the polished surface of the stone. If the stone is badly soiled, wash it carefully and gently in running water, but do not use anything that would scratch it. As soon as it is dry, you can easily see the little grooves the roots have made in the polished surface of the stone. In time roots will penetrate the hardest rock and cause it to break into pieces. In like manner Christ, the spiritual Seed, will penetrate even the hardest heart, if we supply the right conditions. Just because a person seems indifferent and hard-hearted

today is no proof that we may not be able to reach his heart with the love of God tomorrow.



*“For the body is not one member
but many.”*

I Corinthians 12:14



*“In whom all the building
fitly framed together
groweth unto an holy temple in the Lord:
In whom ye also are builded together
for an habitation of God
through the Spirit.”*

Ephesians 2:21-22

*Each booklet in the series,
“Designing Your Own School Program,”
is planned for a family to study together
for their homeschool curriculum;
yet versatile enough to be used
in the conventional classroom.*

*Learn the principles
of the subject matter from the Scriptures;
discover more of the scientific facts;
then apply them to your daily life.*

*Other titles in the health series are available
in the following subjects:*

What is Health?

The Body

The Heart

The Bladder

The Kidneys

The Spleen

The Pancreas

The Gall Bladder

The Bones



Mark 4:29