Limudai Chol Publications is proud to present the first Kosher Earth Science Workbook *ever* produced for the Torah community

Sudy of the Wonders O ashem's Physical World

From our Foreword

In 1854, Rav Samson Raphael Hirsch, *zt*"*l*, wrote the following regarding the state of appropriate educational materials in yeshivos: "Why, there are not even any textbooks. Textbooks have been produced for every other course of study, but textbooks for Jewish schools, textbooks written primarily for the needs of Jewish schools, have yet to appear."

While his intent may have been broader than merely addressing the lack of appropriate general studies textbooks, the sad reality is that there has never been a Science textbook mass-produced and used in yeshivos made primarily with the Torah community in mind. Generations of Torah families have grown up on textbooks that were produced by non-Jewish companies and primarily for non-Jewish audiences. This has left those in the Torah world exposed to many non-Torah ideas found in the secular world and consequently has created many halachic and *hashkafic* challenges for the *frum* student.

To remedy this crying need, Limudai Chol Publications was formed. Over the last four years, Limudai Chol Publications has produced high-quality Regent review books for the frum population which presents brief reviews of those courses of study in a halachically and hashkafically acceptable manner. Building on the success and popularity that these review books have enjoyed, Limudai Chol Publications has now embarked on an ambitious and historic project: to create a line of textbooks and workbooks that conform to the demands of the Torah but which at the same time fully cover entire courses of study demanded by the state.

Using a system approved by a vaad of senior Roshei Yeshivos in America, Limudai Chol Publications is proud to present the first "kosher" workbook for Earth Science ever produced. This book contains approximately 80 percent of the New York State Earth Science curriculum with no questionable content whatsoever. Since the rest of the curriculum does contain problematic content, Limudai Chol Publications has produced rabbinically approved pamphlets that seek to address those issues by presenting them in a halachically acceptable manner. By splitting the curriculum in this manner, an ideological distinction is made as to what is acceptable and what is not, and the objectionable material is studied under specific guidelines outlined by Gedolei Yisrael.

It is our goal that these publications meet the needs of our students, both from an academic and Torah perspective, and we hope that you find this true as well.

Moshe Brody

Some of our Haskamos

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Rabbi Y. Belsky	ישראל הלוי בעלסקי ₉₄₁ - 1112
BROOKLYN, NEW YORK 11218	
	Feburary 11, 2014
As everyone is aware, society's morals have ex Unfortunately, this has even affected the secu teaching anatomy and other useful and scienti Environment is on social issues, kefira and issu when one studies for the Regents, that they du to cover the required material from a Kosher s	operienced a sharp decline in recent years. lar teaching curriculum as well. Instead of merely ific concepts, the emphasis today in Living ues of kedusha. It is therefore imperative that o so with the proper books which were designed standpoint.
It is with this in mind that this book, Brody's R Version was created. Rabbi Moshe Brody, besi bochurim in our holy Yeshivos for almost a deu for many years as one who is fitting to write su	egent Review: Living environment: Yeshiva ides having extensive experience teaching Yeshiva cade, is a talmid of mine who I know personally uch a book.
Therefore it is fitting and proper for all those v use a book such as this one in their Regents pr	who are taking the Living Environment Regents to reparations.
יארא הארין הארי האריך	
Rabbi Yisroel Belsky	
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A, BALTIMORE, MD 21208 FAX: 4106534694 0: Direct Line: 443-5486050	PHONE: 718-941-8000 • FAX: 347-473-7705 Rabbi Yisroel Reisman Rosh Yeshiva
יאוותC.EDU ראש הישיבה ישיבת גר ישראל	3
בס"ד שבט תשע"ז	יטידור קדותה לאיך ציו אי יציצו הישיאי שלים, מוסוט ישידונו בצי נייום במודי השיאי שלים
of Jews to transmit Torah to the next as risen mightlily to this challenge by the orah is taught to children. However, in ags and values are being transmitted to di fts values. This is because the textbooks	נטוחוד כא מורצו המלם יסידה בינחיני דילסךי לאלי און זוא הרבור , לסבר לימוציו לבור תהדר
loshe Brody to form an organization, ooks for Torah day-schools free of anti- receive their secular education rah.	דען המו טעוב לנוד מאון שאים ביא איר סבי בקדוסון. - טונערען בדידן נוידום סיט', דיגנות נסביר (בימודג דער טער לעודיד הילא"ן ועוד, סטיר הערות.
undertaking. It entails huge expenditures is work by supporting Limudai Yisrael. for preserving His Torah. He will nabling us to transmit an unadulterated	1945 8 49 38, 112, 12, 12, 12, 12, 12, 12, 12, 12, 1
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	התסבאת נאתהה אמדאו של תרחן נוצר קשתיק

Tai RABBI AH, 421 YESHIVA LANE, AF TEL: 410-6539 STUDY: 410-4847200 EXT. EMAIL: VESHIVA ROSH HAYESHIVA NER ISRAEL RABBINICAL COLLEGE

TO WHOM IT MAY CONCERN:

It is the sacred obligation of every genera generation. The American Torah commun establishment of hundreds of schools wh secular divisions of these schools many to the students which are antithetical to To which are being used contain such ideas.

I therefore applaud the undertaking of Ri Limudai Yisrael, whose goal is to produce Torah influences in order to enable stude according to the unadulterated teachings

I wish Rabbi Brody success in this monun and I urge the community to come to sha

May Rabbi Brody be blessed from the Alm certainly be blessed by future generations Torah to our children..

Very truly yours, Rabbi Aharon Feldman

הרב ישראל רייזמאן ראש ישיבה

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ני אישה הרוצי עליא וייבי רבון שאשרת שטינה יציין יציייי בינק שאשרת שטינה

How is height (or elevation/ altitude) shown on a flat map?

Contour lines are added onto a map.



What is a contour line?

Before we can understand what a contour line is, we first need to define an **isoline**. An isoline is a line that connects points of equal value in a given field.



For example, if location A is 96° and all the way to location C is also 96°, the line that connects these points is called an isoline.

A contour line is a type of isoline that connects areas on the ground of equal elevation (height). (see figure 2.3 below) Contour lines tell us that every spot on that line has the same elevation. In between these lines are differences in elevation called **contour intervals**.

How do you know what the elevation (height) is for a particular contour line?

If the contour line has a number on it, that is its height.

If the contour line does not have a number, then:

- 1. Take two different contour lines with numbers that are near each other, and subtract the lower number from the higher number.
- 2. Next, count the number of contour intervals in between those two numbers.
- 3. Then, divide the difference in height between the two contour lines by the number of spaces in between the two numbers. You will be able to figure out the distance between the spaces that are between each line.
- 4. Finally, apply the numbers to the lines and you will know the height. (see figure 2.4)

Detailed instructions are provided to explain the material



Figure 2.3

An Example

Notice that these three arrows are all pointing to different points on the same contour line. These three points, as well as all other points on this contour line, have the same height. Therefore, if the line has a height of 1000 feet, any spot on the line also has a height of 1000 feet. The same goes for any contour line on any other map. In other words, any two points on the same contour line will have the same elevation.

By drawing contour lines, we can draw a line on a flat map and then, even when looking from a bird's-eye view, we can see the area's height. Ш

All chapters are followed by review questions

Review Questions: Chapter Two

- 1) What is a topographical map?
- 2) What is another name for a topographical map?
- 3) What is an isoline?
- 4) What does a contour line do?
- 5) What is a contour interval?
- 6) If one contour line measures 100 feet and the next contour line measures 120 feet, what is the contour interval? _____
- 7) If one contour line measures 120 feet and the next contour line measures 125 feet, what would the third contour line probably equal?
- 8) What is the purpose of a map scale?
- 9) What are map keys and symbols used for?
- 10) If someone wishes to climb the steepest part of a mountain, what would he look at on a topographical map in order to determine where that location would be? Explain your answer.
- 11) When contour lines cross a stream, they bend ______ toward the ______ of the stream.
- 12) How does a contour profile differ from a regular topographical map?
- 13) What is the gradient of an area?
- 14) What formula is used to figure out the gradient?

15) What is the gradient of an area if the land slopes up 100 feet in 2 miles?

- 16) The altitude of the land in Boro Park on 12th Ave. is 50 feet. It climbs to 125 feet on 7th Ave. If the space between these avenues is 4000 feet, what is the gradient of that area?
- 17) Moshe is looking for the easiest way to walk to a *kiddush*. If path A has a gradient that measures 20 feet per mile while path B has a gradient that measures 25 feet per mile, which way should Moshe choose?

Every chapter is followed by relevant Regent questions

REGENT QUESTIONS



- 1. On the map above, complete the 600-ft, 700-ft, and 800-ft contour lines in section I. Extend the lines to the edge of the map.
- 2. On the map, draw a line showing the most likely path of a second creek that begins at location E and flows into Spruce Creek.
- 3. Describe how the topography within section II is different from the topography within section IV. What is a possible elevation of location E?
- 4. Calculate the gradient between locations A and B.

Detailed instructions are given showing how to use the Reference Tables

Using the Reference Tables

Sample Regent question

Which planet has a density that is less than the density of liquid water?

- (1) Mercury
- (2) Mars
- (3) Earth
- (4) Saturn

This question requires one to use two Reference Tables-Reference Table entitled "Properties of Water" found on page 1 of your Reference Tables and Solar System Data found on page 15 of your Reference Tables

Properties of Water

Heat energy gained during melting
Heat energy released during freezing
Heat energy gained during vaporization 2260 J/g
Heat energy released during condensation 2260 J/g
Density at 3.98°C 1.0 g/mL

Solar System Data							$\langle \rangle$
Celestial Object	Mean Distance from Sun (million km)	Period of Revolution (d=days) (y=years)	Period of Rotation at Equator	Eccentricity of Orbit	Equatorial Diameter (km)	Mass (Earth = 1)	Density (g/cm ³)
SUN	—	—	27 d	—	1,392,000	333,000.00	1.4
MERCURY	57.9	88 d	59 d	0.206	4,879	0.06	5.4
VENUS	108.2	224.7 d	243 d	0.007	12,104	0.82	5.2
EARTH	149.6	365.26 d	23 h 56 min 4 s	0.017	12,756	1.00	5.5
MARS	227.9	687 d	24 h 37 min 23 s	0.093	6,794	0.11	3.9
JUPITER	778.4	11.9 y	9 h 50 min 30 s	0.048	142,984	317.83	1.3
SATURN	1,426.7	29.5 y	10 h 14 min	0.054	120,536	95.16	0.7
URANUS	2,871.0	84.0 y	17 h 14 min	0.047	51,118	14.54	1.3
NEPTUNE	4,498.3	164.8 y	16 h	0.009	49,528	17.15	1.8
EARTH'S MOON	149.6 (0.386 from Earth)	27.3 d	27.3 d	0.055	3,476	0.01	3.3
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