

NAME _____

DATE _____

Student Investigation

Catalog No. 34W1124

Quake Estate (board game)

INTRODUCTION

Quake Estate is a game of real environmental problems and decisions. You will play the part of a geologist, investor, and land developer. The game board is a simplified version of an area located at a major plate boundary in California. This area has many hazards. These hazards include earthquakes, landslides, fires, and floods. Geologists, land developers and residents have many problems because of these hazards. The object of the game is to acquire the most money and property. Understanding geologic hazards and their effects on land development and use will help you win the game.

OBJECTIVES

After you have completed this activity, you should be able to:

1. Identify the geologic hazards in an earthquake-prone area.
2. Identify the probable effects of these hazards on the land and development in the area.
3. State measures that can be employed to minimize the effect of these hazards.

PROCEDURE

Materials. complete set of game materials

RULES

1. Two to four players may play the game. Team play is also an alternative.
2. A Banker must be selected who will handle the finances during play. This can be done by each player throwing the dice, with the highest throw becoming the Banker. Because the Banker is also a player in the game, he or she must also maintain money as well.

Each group of game cards is shuffled and placed face down beside the Banker.

3. To start the game, each player draws a Property Card from the Banker. This becomes the principal place of residence. If a player draws the Water or Power Company, these are put back into the pile and the player draws again.

The players place their markers at Start and collect \$1,000 each from the Banker (1-\$500, 2-\$100, 3-\$50, 5-\$20, 4-\$10, and 2-\$5). The order of play is clockwise, with the person to the immediate left of the Banker going first.

4. To advance on the board, each player in turn throws the dice and moves his or her marker the number of spaces indicated.

If doubles are thrown, the player receives an additional turn. If doubles are thrown again the dice are passed to the next player and no additional turn is taken.

If the player lands on an unowned property square, it may be purchased at that time for the amount shown on the square. If the property square is owned, including the Water and Power Companies, the player must pay the rent to the owner shown on the Property Card. Rent is the fee shown on the Property Card plus 10% of total value of all developments made. Insurance is not considered a development.

In addition to the property squares, other squares around the board are named according to matching cards. When landing on these squares, the player draws the appropriate card:

ACTION—indicates some money the player is to pay out or receive.

DISASTER—indicates some geologic hazard that affects all players holding property in the areas indicated.

COURT OF LAW—requires the player to pay out a fee for some legal action.

CONSULTANT—player receives, at no cost, a Geologist's Report about one of his or her properties. (Otherwise, players have the option to purchase the Geologist's Report for the fee shown on the Property Card. The Geologist's Report may be purchased at any time during the player's turn). Geologist's Reports will be helpful in planning developments.

PLANNING COMMISSION—player is given a variance to make a total of three developments on a piece of property, rather than being limited to two as is normally the case (see **DEVELOPING LAND**). The third development must be made during that move and may not be "saved."

SPECIAL PROPERTY TAXES—player must pay the amount indicated to the Bank.

5. Each time a player passes Start, the player collects \$1000 from the Banker.

6. If a player runs out of money but holds property, he or she has the option to sell developments back to the bank at 50% of their original cost, or a property may be sold to any of the other players for the highest bid.

7. The game is over when time has run out or when only one player is left. When time has run out, the winner is the player with the greatest wealth. Wealth is determined by adding the cash and actual cost of all property and developments held by each player. Insurance is not included.

DEVELOPING LAND

All of the property squares except the Water and Power Companies may be developed in only two of the following ways: Recreational Area, Residential Area, Condominium and Shopping Center.

Land may be developed at the time it is purchased or when the player passes the Start square. The cost for each development alternative is shown on the Property Card. In developing the land the player should consider the possible geologic hazards of the property. A player may purchase the Geologist's Report on a piece of property at any time during the player's turn by paying the fee shown on the Property Card. When development occurs, the player puts an appropriate structure on the property. Developments cannot be moved from one property to another.

INSURANCE

Insurance against floods, earthquakes, landslides and fire may be purchased from the bank at the time the property is purchased, developed, or when the player passes Start. The Banker records the kinds of insurance purchased on each property on the Banker's Insurance Record. The cost of the various kinds of insurance are shown on the Property Cards. Insurance covers 100% of the cost of property.

Once purchased, the insurance remains active on a piece of property as long as the property is not sold. When property is sold to the bank or another player, the insurance is cancelled. The new owner must buy new insurance if desired.

Damage caused by tsunami can be covered either by flood or earthquake insurance. Before starting the game, the players must decide which insurance policy will cover damage caused by tsunami.

Insurance may not be sold back to the bank (although developments or the property may be). It has no "trade in" value.

Good luck and plan your investments wisely!

SUMMARY QUESTIONS

1. What is the greatest geologic hazard in a zone of active faulting?

4. Why may it be dangerous to build a home on a flood plain of a river?

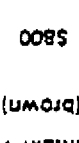
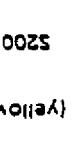
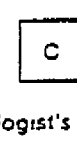
2. What is the most significant hazard associated with dams in an area of active faulting?

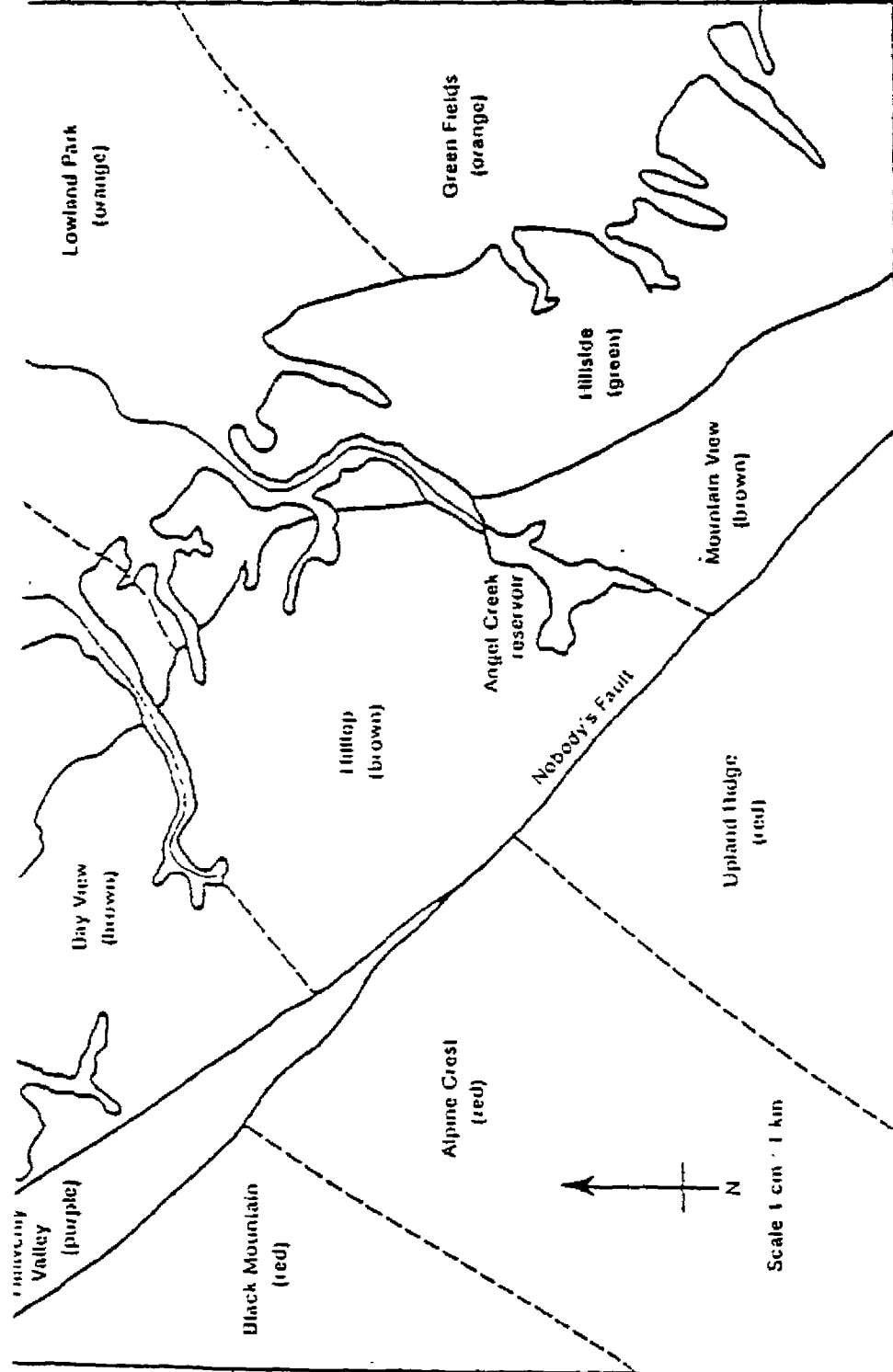
5. What are the factors you would consider when buying a home in an area prone to earthquakes?

3. What is the greatest hazard associated with coastal areas prone to earthquakes?

REFERENCE

Iacopi, R. A., 1964, *Earthquake country*. A Sunset Book, Menlo Park, California, Lane Publishing Company, 192 p. 90.

Company  \$400	Mountain View  \$800	Action  (draw card)	Marshland  \$200	Court of Law  (draw card)			
Snake Creek Plains (orange) Diablo Creek Rolling Hills (green) Gator Bay Marshland (yellow) Tideland (yellow) Bayside (yellow) Meadowside (orange) Lowland Park (orange) Bayside (yellow) Tideland (yellow) Disaster (draw card) Green Fields (orange) Action (draw card)	Plains (orange) \$600	Meadowside (orange) \$500	Lowland Park (orange) \$500	Green Fields (orange) \$400	Disaster (draw card) \$100	Tideland (yellow) \$200	Bayside (yellow) \$200
Power C  \$5	Consultant  Geologist's Report	Plains (orange) \$600	Planning Commission Approves additional development				

Black Mountain (red) \$200	Disaster  (draw card)	Alpine Crest (red) \$300	Upland Ridge (red) \$300	Court of Law  (draw card)						Start Collect \$1,000 Property Tax Pay \$250 Bay View (brown) \$200 Disaster (draw card) Heavenly Valley (purple) \$200 Rolling Hills (green) \$600 Disaster (draw card) Foothill (green) \$500 Hillside (green) \$700				
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BANKER'S INSURANCE RECORD

Mark an X in the box to indicate the kind of insurance purchased on a given property. The cost of each kind of insurance for each property is indicated on the Property Card. Insurance fees are paid to the Banker. Once insurance is purchased, the money cannot be refunded. Insurance remains in force until the property is sold or returned to the bank.

	Insurance Purchased			
	Flood	Earthquake	Landslide	Fire
Alpine Crest				
Bayside				
Bayview				
Black Mountains				
Foothill				
Green Fields				
Heavenly Valley				
Hillside				
Hilltop				
Lowland Park				
Marshland				
Meadowside				
Mountain View				
Plains				
Rolling Hills				
Tideland				
Upland Ridge				

ACTION (white) You constructed your building from fire resistant materials. Collect \$100 construction rebate from the bank.	ACTION (white) You have located a structure on bedrock on your property. Collect \$500 from the bank for earthquake safety.	ACTION (white) You receive a construction rebate from the city because you installed a reinforced plumbing system. Collect \$100 from the bank.
ACTION (white) You had overhangs, judged to be dangerous in an earthquake, removed from your building. Collect \$200 insurance rebate from the bank.	ACTION (white) You are assessed for sewage installation on all your properties. Pay the bank \$50 for each house and \$100 for each condominium. If you have no houses or condominiums, replace this card in the stack and draw another card.	ACTION (white) You have completed a potential slide hazard survey for the area. Collect \$50 from each player who owns property.
ACTION (white) You have purchased emergency supplies of food and water and stored them in a safe place. Collect \$100 from the bank as a disaster committee award.	ACTION (white) You have bought open space around your development for parkland. Collect \$500 from the bank as an aesthetic environment award.	ACTION (white) You had a soil test done on your property before you began development. Collect \$100 development rebate from the bank.
ACTION (white) Because Heavenly Valley is always affected badly by earthquakes, the insurance company has cancelled its earthquake insurance. No refund of the cost of insurance will be made. If no earthquake insurance has been purchased, the property owner may not buy earthquake insurance.	ACTION (white) Advance to start and collect an additional \$500 from the bank.	ACTION (white) Because you agree to install emergency shut-off valves on your gas lines, receive a grant from the city to pay for the cost of installing the valves. Collect \$300 from the bank.
	ACTION (white) You used only reinforced concrete or masonry in your buildings as recommended by the planning commission. Collect \$500 construction rebate from the bank.	ACTION (white) Because you have developed an emergency exit route from the urban area, collect \$50 from each player and \$100 from the bank.

COURT OF LAW (blue)

A dammed creek on your property overflows and floods onto adjacent land. You are judged responsible in a resulting court case.

Pay damage costs of \$250.

COURT OF LAW (blue)

A tree on your property falls during a wind gust and damages a building on an adjacent property.

Pay repair damages of \$300.

COURT OF LAW (blue)

You fail to file an environmental impact report for property development.

Pay fine of \$350.

COURT OF LAW (blue)

A court case to settle a dispute about property boundaries is judged in your favor.

Pay lawyer's fee of \$300.

COURT OF LAW (blue)

You have a grass fire on your property. Before you could reseed, rains and landsliding have occurred and cause damage to property and buildings.

Pay costs of \$200.

COURT OF LAW (blue)

A court case filed by a person injured on your property is judged to be caused by your negligence.

Pay fine of \$500.

COURT OF LAW (blue)

Your property has subsided and caused damage to sewage lines.

Pay repair damage costs of \$150.

COURT OF LAW (blue)

Because you did not get a building permit for a development on your property, you have created a building zone violation.

Pay building zone violation fine of \$100.

COURT OF LAW (blue)

You are judged guilty of causing environmental pollution.

Pay environmental pollution fine of \$350.

COURT OF LAW (blue)

You have had a court case with one of your tenants.

Pay lawyer's fee of \$200.

DISASTER (red)

Wind waves cause erosion along the bay. This affects Tideland (yellow) only. All property owners in this area without flood insurance must pay the amount shown for each property and each development made on each property. (If there are no developments, the property owner does not have to pay.) Property owners who have flood insurance pay only 50% of the amount shown on the insured properties.

Property:	\$ 50
Residential:	\$ 50
Condominium:	\$100
Shopping Center:	\$200
Recreational:	\$ 10

DISASTER (red)

A severe earthquake of magnitude 8.0 hits the entire area. All property owners without earthquake insurance must pay the amount shown for each development made on each property. (If there are no developments, the property owner does not have to pay.) Property owners who have earthquake insurance pay only 50% of this amount on the insured properties.

Residential	Condo	Recreational	Shopping Center
FootHill (green):	\$ 50	\$100	\$ 25
Hilltop (brown):	\$150	\$250	\$ 50
Mountain (red):	\$150	\$250	\$ 50
Plains (orange):	\$150	\$250	\$ 50
Tideland (yellow):	\$300	\$500	\$100
Valley (purple):	\$300	\$500	\$100

DISASTER (red)

Heavy pumping of ground water during drought causes subsidence in Tideland (yellow) and Plains (orange). All property owners in these areas pay the amount shown. There is no insurance coverage for subsidence.

Property:	Costs
Residential:	Tideland \$100
Condominium:	Plains \$ 75
Shopping Center:	\$200
Recreational:	\$150
	\$ 0
	\$100
	\$ 0

DISASTER (red)

A lightning storm in Mountain (red) causes a grass fire which results in damage to developments in that area. All property owners in this area without fire insurance must pay the amount shown for each development on each property in the area. (If there are no developments, the property owner does not have to pay.) Property owners who have fire insurance pay only 50% of the amount shown on the insured properties.

Residential	Condo	Recreational	Shopping Center
FootHill (green):	\$100	\$200	\$400
Hilltop (brown):	\$200	\$400	\$800
Mountain (red):	\$400	\$800	\$1600
Plains (orange):	\$400	\$800	\$1600
Tideland (yellow):	\$800	\$1600	\$3200
Valley (purple):	\$800	\$1600	\$3200

DISASTER (red)

A large tsunami hits the Tideland (yellow) areas only. All property owners in this area without flood or earthquake insurance must pay the amount shown for the property and for each development made on each property. (If there are no developments, the property owner does not have to pay.) Property owners who have flood insurance pay only 50% of the amount shown on the insured properties.

Property:	Residential	Condo	Recreational	Shopping Center
FootHill (green):	\$100	\$200	\$400	\$800
Hilltop (brown):	\$200	\$400	\$800	\$1600
Mountain (red):	\$400	\$800	\$1600	\$3200
Plains (orange):	\$400	\$800	\$1600	\$3200
Tideland (yellow):	\$800	\$1600	\$3200	\$6400
Valley (purple):	\$800	\$1600	\$3200	\$6400

DISASTER (red)

Heavy rains and high onshore winds cause coastal flooding in the Tideland (yellow). All property owners without flood insurance must pay the amount shown for each property and for each development on each property. (If there are no developments, the property owner does not have to pay.) Property owners who have flood insurance pay only 50% of the amount shown.

Property:	\$ 50
Residential:	\$100
Condominium:	\$200
Shopping Center:	\$400
Recreational:	\$ 50

DISASTER (red)

An earthquake of magnitude 5.0 hits the entire area. All property owners without earthquake insurance must pay the amount shown for each development made on each property. (If there are no developments, the property owner does not have to pay.) Property owners who have earthquake insurance pay only 50% of the amount on the insured properties.

Residential	Condo	Recreational	Shopping Center
FootHill (green):	\$ 0	\$ 0	\$ 0
Hilltop (brown):	\$10	\$ 25	\$ 0
Mountain (red):	\$10	\$ 25	\$ 0
Plains (orange):	\$10	\$ 25	\$ 0
Tideland (yellow):	\$50	\$100	\$ 0
Valley (purple):	\$50	\$100	\$ 0

DISASTER (red)

An earthquake of magnitude 5.0 hits the entire area. Panic among people in the condominiums causes damage. Minor damage is done to residential properties. All property owners without earthquake insurance must pay the amount shown for each development on each property affected. (If there are no developments, the property owner does not have to pay.) Property owners who have earthquake insurance pay only 50% of the amount shown on the insured properties.

FootHill (green):	Condo	Recreational
Hilltop (brown):	\$ 50	\$100
Mountain (red):	\$100	\$200
Plains (orange):	\$100	\$200
Tideland (yellow):	\$200	\$400
Valley (purple):	\$200	\$400

DISASTER (red)

A small earthquake of magnitude 4.0 affects only chimneys in residential developments. Property owners in the affected areas without earthquake insurance must pay the amount shown for each development made on each property. (If there are no developments, the property owner does not have to pay.) Property owners who have earthquake insurance pay only 50% of the amount shown on the insured properties.

FootHill (green):	Condo	Recreational
Hilltop (brown):	\$ 0	\$ 0
Mountain (red):	\$ 0	\$ 0
Plains (orange):	\$ 0	\$ 0
Tideland (yellow):	\$ 0	\$ 0
Valley (purple):	\$ 0	\$ 0

DISASTER (red) Heavy rains produce abundance of expensive hydroelectric power. The Power Company rebates \$25 to each property owner. Resi- Condo- Recrea- Shopping dential minimum dential Center \$25 \$50 \$25 \$50 \$100 \$200 \$50 \$200 \$100 \$200 \$50 \$200 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$100 \$200 \$50 \$200	DISASTER (red) Heavy rains throughout the area cause landslides on some properties. Property owners in the affected areas without landslide insurance must pay the amount shown for each development made on each property. (If there are no developments, the property owner does not have to pay.) Property owners with landslide insurance pay only 50% of the amount on the insured property.	DISASTER (red) A minor earthquake of magnitude 6.0 occurs in the mountain area and causes cracks in the dams. All homes in flood prone areas (orange and yellow) are evacuated. Property owners in the affected areas without earthquake insurance must pay the amount shown for each development made on each property. (If there are no developments, the property owner does not have to pay.) Property owners with earthquake insurance pay only 50% of this amount on the insured property. Residential: \$100 Condominium: \$400 Shopping Center: \$400 Recreational: \$0	DISASTER (red) A fire starts in Plains and is spread into the mountains by a local wind. All property owners without fire insurance must pay the amount shown for each development made on each property. (If there are no developments, the property owner does not have to pay.) Property owners with fire insurance pay only 50% of the amount on insured properties. Resi- Condo- Recrea- Shopping dential minimum dential Center \$100 \$200 \$25 \$200 \$50 \$100 \$25 \$100 \$25 \$50 \$25 \$50 \$200 \$400 \$50 \$400 \$0 \$0 \$0 \$0 \$25 \$50 \$25 \$50	DISASTER (red) An earthquake of magnitude 6.5 causes sand boils and local "quick sand" conditions in Plains (orange) during rainy season. All property owners in the Plains without earthquake insurance must pay the amount shown for each development on each property. (If there are no developments, the property owner does not have to pay.) Property owners with insurance pay only 50% of the amount on the insured property. Residential: \$50 Condominium: \$100 Shopping Center: \$150 Recreational: \$25
DISASTER (red) Increased rates during a recent period of drought are now refunded to property owners. The Water Company pays \$25 to the owner of each property (except Power and Water Companies).	DISASTER (red) Creep on faults affects structures directly on fault trace in Heavenly Valley. The property owner without insurance pays the amount shown for each development. (If there are no developments, the property owner does not have to pay.) The property owner with insurance pays only 50% of the amount shown. Residential: \$200 Condominium: \$400 Shopping Center: \$500 Recreational: \$0	DISASTER (red) Persistent storms clog reservoirs. The Water Company must assume the cost of repairs. The owner of this utility must pay \$500 to the bank.	DISASTER (red) An earthquake in a remote area damages the power lines. The Power Company must assume cost of repairs. The owner of this utility must pay \$500 to the bank.	DISASTER (red) An earthquake of magnitude 4.0 occurs in the area. Only minor damage occurs in the Tieland (yellow) and Valley (purple). All property owners without earthquake insurance in these areas must pay \$50 for each property. Property owners who have earthquake insurance pay only \$2

Alpine Crest (red) Sedimentary and volcanic rocks form mountains. Steep slopes prone to landslides. Potential earthquake damage slight in earthquakes of less than magnitude 5.0. Grass fires possible in summer months. No risk of floods. Recommendations— Purchase fire insurance. Purchase landslide insurance. Might consider earthquake insurance. No need for flood insurance.	Foothill (green) Very stable sedimentary rocks, rolling hills with gentle slopes. Generally resistant to earthquake damage except for those of high magnitude. Danger from landsliding and grass fires. No danger from flooding. Recommendations— Purchase landslide and fire insurance. Might consider earthquake insurance. No need to purchase flood insurance.
GEOLOGIST'S REPORT Black Mountain (red) Sedimentary and volcanic rocks form mountains. Steep slopes prone to landslides. Potential earthquake damage slight in earthquakes of less than magnitude 5.0. Grass fires possible in summer months. No risk of floods. Recommendations— Purchase fire insurance. Purchase landslide insurance. Might consider earthquake insurance. No need for flood insurance.	GEOLOGIST'S REPORT Rolling Hills (green) Very stable sedimentary rocks, rolling hills with gentle slopes. Generally resistant to earthquake damage except for those of high magnitude. Danger from landsliding and grass fires. No danger from flooding. Recommendations— Purchase landslide and fire insurance. Might consider earthquake insurance. No need to purchase flood insurance.
GEOLOGIST'S REPORT Upland Ridge (red) Sedimentary and volcanic rocks form mountains. Steep slopes prone to landslides. Potential earthquake damage slight in earthquakes of less than magnitude 5.0. Grass fires possible in summer months. No risk of floods. Recommendations— Purchase fire insurance. Purchase landslide insurance. Might consider earthquake insurance. No need for flood insurance.	GEOLOGIST'S REPORT Mountain View (brown) Mixture of volcanic and sedimentary rocks. Hills are steep and prone to landsliding. Potential earthquake damage slight in low and moderate magnitude earthquakes. No risk of floods. Grass fires possible. Recommendations— Purchase landslide insurance. Might consider earthquake and fire insurance. No need for flood insurance.
GEOLOGIST'S REPORT Heavenly Valley (purple) Extensively crushed sedimentary and metamorphic rocks. Long, narrow valley with gentle slopes. High earthquake risk at most magnitudes. Frequent landslides from surrounding mountains. High fire danger during summer. No major risk from flooding. Recommendations— Purchase earthquake, landslide, and fire insurance. No need to purchase flood insurance.	GEOLOGIST'S REPORT Bay View (brown) Mixture of volcanic and sedimentary rocks. Hills are steep and prone to landsliding. Potential earthquake damage slight in low and moderate magnitude earthquakes. No risk of floods. Grass fires possible. Recommendations— Purchase landslide insurance. Might consider earthquake and fire insurance. No need for flood insurance.
GEOLOGIST'S REPORT Hillside (green) Very stable sedimentary rocks, rolling hills with gentle slopes. Generally resistant to earthquake damage except for those of high magnitude. Danger from landsliding and grass fires. No danger from flooding. Recommendations— Purchase landslide and fire insurance. Might consider earthquake insurance. No need to purchase flood insurance.	GEOLOGIST'S REPORT Hilltop (brown) Mixture of volcanic and sedimentary rocks. Hills are steep and prone to landsliding. Potential earthquake damage slight in low and moderate magnitude earthquakes. No risk of floods. Grass fires possible. Recommendations— Purchase landslide insurance. Might consider earthquake and fire insurance. No need for flood insurance.

marshland (yellow)

Soft, water-logged mud and clay; poor, weak foundation materials, subject to large earthquake movements. Flooding may be caused by tsunami and river overflow. Low fire and landslide risk.

Recommendations—

Purchase earthquake and flood insurance.

No need to purchase landslide or fire insurance.

Lowland Park (orange)

Poorly compacted sedimentary rock. High groundwater levels, good foundation materials and gentle slopes. Structures react well in low to moderate earthquakes. Danger of flooding from rivers. Susceptible to periodic grass fires. Low landslide risk.

Recommendations—

Might consider purchasing earthquake, flood and fire insurance.

No need to purchase landslide insurance.

GEOLOGIST'S REPORT

Bayside (yellow)

Soft, water-logged mud and clay; poor, weak foundation materials, subject to large earthquake movements. Flooding may be caused by tsunami and river overflow. Low fire and landslide risk.

Recommendations—

Purchase earthquake and flood insurance.

No need to purchase landslide or fire insurance.

GEOLOGIST'S REPORT

Meadowside (orange)

Poorly compacted sedimentary rock. High groundwater levels, good foundation materials and gentle slopes. Structures react well in low to moderate earthquakes. Danger of flooding from rivers. Susceptible to periodic grass fires. Low landslide risk.

Recommendations—

Might consider purchasing earthquake, flood and fire insurance.

No need to purchase landslide insurance.

GEOLOGIST'S REPORT

Tideland (yellow)

Soft, water-logged mud and clay; poor, weak foundation materials, subject to large earthquake movements. Flooding may be caused by tsunami and river overflow. Low fire and landslide risk.

Recommendations—

Purchase earthquake and flood insurance.

No need to purchase landslide or fire insurance.

GEOLOGIST'S REPORT

Plains (orange)

Poorly compacted sedimentary rock. High groundwater levels, good foundation materials and gentle slopes. Structures react well in low to moderate earthquakes. Danger of flooding from rivers. Susceptible to periodic grass fires. Low landslide risk.

Recommendations—

Might consider purchasing earthquake, flood, and fire insurance.

No need to purchase landslide insurance.

GEOLOGIST'S REPORT

Green Fields (orange)

Poorly compacted sedimentary rock. High groundwater levels, good foundation materials and gentle slopes. Structures react well in low to moderate earthquakes. Danger of flooding from rivers. Susceptible to periodic grass fires. Low landslide risk.

Recommendations—

Might consider purchasing earthquake, flood, and fire insurance.

No need to purchase landslide insurance.

Worksheet 7 (Page 1)

UPLAND RIDGE (red) Land cost: \$ 300 Development Recreational: \$ 100 Residential: \$ 400 Condominium: \$ 800 Shopping Center: \$2,000 Insurance Flood \$ 50 Earthquake \$ 100 Landslide \$ 150 Fire \$ 150 Rent \$0 plus 10% of total value of all developments made. Geologist's Report Fee \$25	HEAVENLY VALLEY (purple) Land cost: \$ 200 Development Recreational: \$ 100 Residential: \$ 400 Condominium: \$ 800 Shopping Center: \$1,200 Insurance Flood \$ 50 Earthquake \$ 150 Landslide \$ 100 Fire \$ 50 Rent \$20 plus 10% of total value of all developments made. Geologist's Report Fee \$30	ROLLING HILLS (green) Land cost: \$ 600 Development Recreational: \$ 500 Residential: \$ 900 Condominium: \$2,000 Shopping Center: \$4,000 Insurance Flood \$ 50 Earthquake \$ 100 Landslide \$ 150 Fire \$ 150 Rent \$60 plus 10% of total value of all developments made. Geologist's Report Fee \$25	FOOTHILL (green) Land cost: \$ 500 Development Recreational: \$ 400 Residential: \$ 800 Condominium: \$1,500 Shopping Center: \$3,000 Insurance Flood \$ 50 Earthquake \$ 100 Landslide \$ 150 Fire \$ 150 Rent \$50 plus 10% of total value of all developments made. Geologist's Report Fee \$25	HILLSIDE (green) Land cost: \$ Development Recreational: \$ Residential: \$1 Condominium: \$2 Shopping Center: \$4 Insurance Flood \$ Earthquake \$ Landslide \$ Fire \$ Rent \$70 plus 10% of total value of all developments made. Geologist's Report Fee \$25
ALPINE CREST (red) Land cost: \$ 300 Development Recreational: \$ 100 Residential: \$ 400 Condominium: \$ 800 Shopping Center: \$2,000 Insurance Flood \$ 50 Earthquake \$ 100 Landslide \$ 150 Fire \$ 150 Rent \$0 plus 10% of total value of all developments made. Geologist's Report Fee \$20	BLACK MOUNTAIN (red) Land cost: \$ 200 Development Recreational: \$ 100 Residential: \$ 300 Condominium: \$ 700 Shopping Center: \$1,500 Insurance Flood \$ 50 Earthquake \$ 100 Landslide \$ 150 Fire \$ 150 Rent \$20 plus 10% of total value of all developments made. Geologist's Report Fee \$20	MEADOWSIDE (orange) Land cost: \$ 500 Development Recreational: \$ 300 Residential: \$ 800 Condominium: \$2,000 Shopping Center: \$4,000 Insurance Flood \$ 100 Earthquake \$ 150 Landslide \$ 100 Fire \$ 100 Rent \$50 plus 10% of total value of all developments made. Geologist's Report Fee \$30	PLAINS (orange) Land cost: \$ 600 Development Recreational: \$ 400 Residential: \$ 800 Condominium: \$2,000 Shopping Center: \$4,000 Insurance Flood \$ 100 Earthquake \$ 150 Landslide \$ 100 Fire \$ 100 Rent \$60 plus 10% of total value of all developments made. Geologist's Report Fee \$30	LOWLAND PARK (orange) Land cost: \$ Development Recreational: \$ Residential: \$ Condominium: \$3 Shopping Center: \$4 Insurance Flood \$ Earthquake \$ Landslide \$ Fire \$ Rent \$50 plus 10% of total value of all developments made. Geologist's Report Fee \$30

POWER COMPANY (white) Utility cost \$ 500 Utility fees \$ 50	MARSH AND (yellow) Land cost: \$ 200 Recreational: \$ 100 Residential: \$ 300 Condominium: \$ 500 Shopping Center: \$1,000 Flood \$ 100 Earthquake \$ 100 Landslide \$ 50 Fire \$ 50 Rent \$20 plus 10% of total value of all developments made. Geologist's Report Fee \$20	BAYSIDE (yellow) Land cost: \$ 200 Recreational: \$ 100 Residential: \$ 300 Condominium: \$ 500 Shopping Center: \$1,000 Flood \$ 100 Earthquake \$ 100 Landslide \$ 50 Fire \$ 50 Rent \$20 plus 10% of total value of all developments made. Geologist's Report Fee \$20	TIDELAND (yellow) Land cost: \$ 100 Recreational: \$ 100 Residential: \$ 200 Condominium: \$ 400 Shopping Center: \$ 900 Flood \$ 100 Earthquake \$ 100 Landslide \$ 50 Fire \$ 50 Rent \$10 plus 10% of total value of all developments made. Geologist's Report Fee \$20	GILCH FIELDS (orange) Land cost: \$ 4 Recreational: \$ 4 Residential: \$ 8 Condominium: \$20 Shopping Center: \$40 Flood \$ 1 Earthquake \$ 1 Landslide \$ 1 Fire \$ 1 Rent \$40 plus 10% of total value of all developments made. Geologist's Report Fee \$30
WATER COMPANY (white) Utility cost \$ 400 Utility fees \$ 50	WATER COMPANY (white) Utility cost \$ 400 Utility fees \$ 50	BAY VIEW (brown) Land cost: \$ 800 Recreational: \$ 500 Residential: \$ 800 Condominium: \$2,000 Shopping Center: \$3,000 Flood \$ 50 Earthquake \$ 100 Landslide \$ 150 Fire \$ 150 Rent \$80 plus 10% of total value of all developments made. Geologist's Report Fee \$20	HILLTOP (brown) Land cost: \$ 800 Recreational: \$ 500 Residential: \$ 800 Condominium: \$2,000 Shopping Center: \$4,000 Flood \$ 50 Earthquake \$ 100 Landslide \$ 150 Fire \$ 150 Rent \$80 plus 10% of total value of all developments made. Geologist's Report Fee \$25	MOUNTAIN VIEW (brown) Land cost: \$ Recreational: \$ Residential: \$ Condominium: \$2. Shopping Center: \$3. Flood \$ Earthquake \$ Landslide \$ Fire \$ Rent \$80 plus 10% of total value of all developments made. Geologist's Report Fee \$25



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