
UNITED STATES MARINE CORPS
THE BASIC SCHOOL
MARINE CORPS TRAINING COMMAND
CAMP BARRETT, VIRGINIA 22134-5019

USING TERRAIN MODELS

W270004

STUDENT HANDOUT

Using Terrain Models

Introduction

Terrain models are used to paint a visual picture for those Marines receiving an order. Terrain models must be constructed properly in order to assist in clarification of the order to all subordinates.

Importance

“Only an order that is understood by all translates a tactical decision into action...”. In Combat Orders Foundations, we discussed the importance of creating and issuing a clear and concise order that directly translated into a solid understanding by your subordinates. A terrain model is a very helpful method of accomplishing that end. Here at The Basic School (TBS), you (and your squad, platoon, etc.) will be evaluated in the construction of terrain models. This class serves to introduce some basic concepts of terrain model construction

In This Lesson

We shall discuss the proper procedure for constructing an effective terrain model. Although no Marine Corps publication identifies a specific method, the material presented here represents a best-practice guide.

This lesson covers the following topics:

Topic	Page
Terrain Model Kit	3
Terrain Model Construction	3
Summary	5
References	5
Glossary of Terms and Acronyms	6
Notes	6

Learning Objectives

TERMINAL LEARNING OBJECTIVES:

TBS-PAT-2004 Given an order, map, overlay material, assorted color map pens, protractor, templates, and references, develop a map overlay to graphically depict the scheme of maneuver.

TBS-C2-1002 Given subordinate units and an order, while considering the situation and time available, issue a five paragraph order to communicate a complete, realistic, and tactically sound plan that accomplishes the mission.

ENABLING LEARNING OBJECTIVES:

TBS-C2-1002e Given a terrain model, map overlay, or graphic, make use of a terrain model, map overlay, or graphic during an orders brief to reinforce understanding of the order.

TBS-PAT-1008a Given a mission to patrol, a scheme of maneuver, and overlay materials, prepare an overlay to depict the patrol scheme of maneuver.

TBS-PAT-2004a Given an evaluation, identify overlay materials without omission.

Terrain Model Kit

At TBS, each fire team will be directed by the company staff to create Terrain Model Kits. The standardized list of all items that should be included is listed below, so that all billet holders can quickly access the tools necessary to construct and incorporate a terrain model into the order issue process. Each fire team should bring their terrain model kit to the field; student leadership is responsible for ensuring compliance. Student leadership should ensure that all terrain model kits meet the minimum requirements and that the kits are reconstituted as needed after each field evolution.

All terrain model kits will contain the following items:

- Yarn
 - 3m white yarn for grid lines
 - 3m black yarn for roads and trails
 - 3m blue yarn for rivers, streams, and bodies of water
 - 3m yellow yarn for phase lines and boundaries
 - 3m of green yarn for utility purposes
- Laminated 3" x 5" unit symbols and operational graphics
 - friendly and enemy fire team, squad, and platoon symbols
 - Tactical control measures (TCMs), to include the assembly area (AA), attack position (AtkPos), assault position (AsltPos), line of departure (LD).
 - light and heavy mortars, machine guns, and assault weapons
 - support by fire position symbol
 - fire team and squad defensive position symbols
 - check point and listening post (LP)/observation post (OP) symbols
 - 10 blank cards (grid lines, indirect fire targets, etc)

(Note: Spray paint is not recommended due to the flammability issues and the size of the canister.)

Terrain Model Construction

Terrain models, built properly, enhance a leader's ability to communicate the details and intricacies of a plan to subordinates. By creating this "picture" of the terrain to be covered during any given mission, a unit commander can create for subordinates a mental image of the proposed scheme of maneuver. The proper procedure for constructing a terrain model follows.

- Use a map to identify the area required; include entire area that is mentioned in the order. Identify any defining features within the area, such as northings/eastings, mountains, hills, water, etc. Ensure that any relevant areas of interest and adjacent units are included (especially if they could potentially impact your proposed scheme of maneuver).

Terrain Model Construction (Continued)

- Orient the terrain model with reference to the direction of movement. Ensure that “north” on the terrain model is always really “north.”
- The size of the terrain model should be appropriate for the unit and the mission. If the entire platoon will attend the order issue, ensure that the terrain model is large enough for all to gather around. It is recommended that subordinate leaders are placed at the base of the terrain model, oriented in the direction of movement.
- The terrain model should accurately represent the terrain to be found within the area covered. Your Marines must be able to determine at a glance the type of terrain they will be negotiating during the operation.
- Ensure that the terrain is proportional; use some sort of scale to establish common proportion for elevation and slope. Accentuate the terrain to facilitate comparison to the map. Try to make your terrain model “boot-top high”.
- All markings should coordinate with the colors used on a map. For instance, blue yarn should be used for water features while black yarn should be used for roads or trails. (However, white yarn is typically used for grid lines.)
- Include the following on your terrain model:
 - Grid Lines.
 - Water features.
 - Vegetation.
 - Relief features.
 - Boundaries.
 - Known trails.
 - Landing Zones.
 - North-seeking arrow.
 - TCMs.
 - Targets.
 - Main Supply Routes (MSRs).
 - Objectives.
 - Trigger Lines.
 - Alternate positions.
 - Supplementary positions.
 - Obstacles.
 - LPs/OPs.
 - Check Points.
 - Built-up areas.

Terrain Model Construction (Continued)

- To avoid wasting time reading grid coordinates several times during the order and to eliminate any possible error during transcription, write the grid coordinates on laminated white cards and include them on the terrain model. Ensure the labels can be seen from as far away as possible; you want to provide your Marines as much information as possible. Include grid coordinates for the following:
 - TCMs.
 - Objectives.
 - Check Points.
 - Targets.
- Ensure that all units, TCMs, and features are properly identified with the appropriate operational terms and graphics. Lack of attention to detail will result in your Marines lacking confidence in your abilities.
- At times, it may be feasible to use a smaller terrain model specifically for the objective if it will provide further clarity in briefing the order.
- Specifically in the defense, ensure that you identify final protective lines (FPLs) and principal direction of fires (PDFs) for the crew-served weapons systems.

Summary

The most important factor for terrain model construction is “detail”. Ensure that the terrain model with which you will present your scheme of maneuver is as detailed as possible. This will directly translate into a more solid understanding among your subordinates and a greater chance of mission accomplishment and success.

References

Reference Number or Author	Reference Title
MCDP 1	Warfighting
MCDP 5	Planning
MCRP 3-11.1A	Commander's Tactical Handbook
MCWP 3-11.1	Marine Rifle Company/Platoon
MCWP 3-11.2	Marine Rifle Squad
MCWP 3-1	Ground Combat Operations

Glossary of Terms and Acronyms

Term or Acronym	Definition or Identification
AA	Assembly area
Atk Pos	Attack position
Aslt Pos	Assault position
FPL	Final protective line
LD	Line of departure
LP	Listening post
MSR	Main Supply Route
OP	Observation post
PDF	Principal direction of fire
TBS	The Basic School
TCM	Tactical Control Measure

Notes
