**Determining the Ages of the Planets and the Universe HANDOUT**

***Vocabulary***

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| simultaneously | 同时的 | gratifying | 使人欣喜的 |
| Disk | 碟 | meteorite | 彗星 |
| Precisely | 精准的 | extraterrestrial | 地外的 |
| assemble | 组合 | crash | 坠毁 |
| cluster | 簇 | asteroid | 陨石 |
| analogous | 类似的 | fragment | 细小部分 |
| metallic | 镀铬的 | by means of | 通过 |

***Sentence Analysis & Translation***

1. This is strong evidence [that the planets formed (simultaneously from) a single disk of material ][that rotated in the same direction as the modern planets.]

这个是对于行星同时由单个物质盘组成的有力证据。这些物质盘与现在行星相同的方向旋转着。

1. Iron meteorites are fragments [of the interiors of these bodies], [comparable to Earth’s core], and stony meteorites are from outer portions of these bodies, [comparable to Earth’s mantle (the layer between the core and outer crust)].

铁陨石是由与地球的地幔相当的天体内部的碎片，石质陨石来自于这些天体与地幔（核心和外壳之间的一层）相当的外部。

1. Ancient rocks can be found on the Moon [because the lunar surface, (unlike that of Earth), has no water to weather and erode rocks and is characterized by only weak movements of its crust.]

古老的石头可以在月球上被发现，因为月球的表面和地球不同，并没有水去风化这些岩石，并且以细微的地壳移动所代表。

1. [Before the galaxies formed]时间状语, matter [that they contain] was concentrated with infinite density [at a single point from which it exploded in an event called the big bang].

在星系形成之前，它们所包含的物质以无限密度集中在一个点上，然后爆炸，这个事件被称为宇宙大爆炸。

1. The farther these light waves have traveled through space, the greater the redshift they have undergone. For this reason, light waves [that reach Earth from distant galaxies] have larger redshifts [than those from nearby galaxies].

这些光波在太空中传播得越远，它们经历的红移就越大。出于这个原因，从遥远星系到达地球的光波比来自附近星系的光波具有更大的红移。

***Mindmap/ Structure***

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