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| DM3107: Major Research Project |
| Case Study - Final Project |
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# Abstract:

As video games continue to capture the imagination of players worldwide, the role of tutorials in facilitating new player onboarding has become a subject of increasing scrutiny. This research delves into the efficiency of tutorials, focusing on their reception and impact within the sandbox phenomenon of Minecraft. The study aims to explore how tutorials influence player behaviour, resource management, and progression trajectories, with a specific focus on comparing tutorial-guided gameplay against tutorial-free exploration.

The methodology involves a practical assessment where participants attempt to achieve predefined goals in Minecraft, with half receiving tutorial guidance and the other half navigating the game independently. The findings reveal pronounced differences in gameplay behaviour between the two groups, with tutorial users experiencing accelerated progression but often exhibiting premature disengagement, while non-tutorial users embark on a more exploratory journey, leading to a broader array of accomplishments.

Through detailed analysis and discussion, the research underscores the multifaceted nature of learning within Minecraft, highlighting the importance of striking a balance between structured guidance and experiential learning. While tutorials offer valuable resources for novice players, they may inadvertently limit the exploratory process. Therefore, developers must consider diverse pathways to engage players and foster environments that encourage self-directed exploration and problem-solving, ultimately leading to more satisfying and diverse gameplay outcomes.

In conclusion, this study contributes valuable insights into the dynamics of player engagement and learning within video games, emphasizing the need for inclusive and engaging game design that caters to the diverse preferences and learning styles of players.

# Introduction:

Video games have become an integral part of contemporary entertainment, offering immersive experiences that captivate players of all ages. As the gaming industry continues to evolve, one crucial aspect under scrutiny is the role of tutorials in facilitating the onboarding process for new players. This research delves into the efficiency of tutorials, focusing on their reception, which often oscillates between being perceived as invaluable aids or irksome interruptions. Specifically, the study centres on the sandbox phenomenon, Minecraft, renowned for its boundless creativity and open-ended gameplay (2009).

This research aims to explore the efficiency of tutorials in introducing new players to video games, focusing specifically on their reception, which often varies between being very helpful or incredibly annoying. The investigation involves having participants play Minecraft, a popular sandbox game, and complete specific goals while measuring the time taken to achieve these objectives. Additionally, the study will assess the materials used by participants and the difficulty of acquiring these materials. This approach assumes that all participants are able-bodied and of sound mind. Key definitions include "The Game/The World," referring to a specifically generated Minecraft map, "the goals," a set of six objectives for each participant, and "the player," referring to each participant. The importance of this study lies in addressing the ongoing debate between players and developers regarding the necessity and complexity of tutorials in games.

# Methodology:

The research methodology involves a practical assessment with participants attempting to achieve six predefined goals in a premade Minecraft world. These goals are divided into three easy and three hard ones, designed to measure the player's understanding and ability to navigate the game. Participants have the freedom to give up at any time but are encouraged to complete at least one goal to gather sufficient data.

The participant group is split evenly, with half receiving a version of Minecraft that includes a tutorial and the other half playing without any instructional guidance. This approach is chosen to provide a clear comparison of the tutorial's impact on players' performance, free from personal bias. Information collected includes the types and amounts of materials gathered and utilized by participants and the timing of these actions. Success in achieving the goals quickly and the use of more complex materials indicate a deeper understanding of the game mechanics.

The study spans the majority of the second semester and targets individuals with minimal to no prior experience with video games, particularly Minecraft. Participants are expected to predominantly come from an older age group, as younger individuals are more likely to be familiar with the game. To ensure consistency, all participants will play on the same laptop in a controlled environment.

Aiming for 30-40 responses will provide a robust data set to ensure accurate conclusions. Insufficient responses might compromise data accuracy, leading to less reliable results, whereas a larger sample size would enhance the validity of the findings. The data analysis will involve detailed comparisons of the time taken to complete each goal, the materials used, and the point at which participants chose to give up.

Participants are randomly assigned to either the control or experimental group as they arrive, alternating between the two groups. This random assignment method ensures that no selection bias influences the results, providing a truly representative sample for evaluating the tutorial's effectiveness. By comparing the performance of both groups, the study aims to draw objective conclusions about the value and impact of tutorials in video games.

# Findings:

The analysis of the dataset underscores pronounced differences in gameplay behaviour between participants who used a tutorial and those who did not. Participants without a tutorial generally exhibited quicker initial actions, such as breaking their first block and constructing a house. These participants typically completed these tasks significantly faster, with an average time of around 35 seconds to break the first block and approximately 2 minutes to build a house. In contrast, participants with tutorials took longer, averaging about 55 seconds to break their first block and around 3.5 minutes to construct a house.

Participants without tutorials also demonstrated higher efficiency in resource gathering and tool crafting. This group often reached advanced milestones, such as obtaining iron ingots and crafting stone tools, more swiftly than their tutorial-guided counterparts. Non-tutorial participants typically acquired iron ingots within 12 to 13 minutes, whereas tutorial users usually reached this stage around 13 to 17 minutes. This expedited progress indicates a more intuitive understanding and quicker adaptation to the game's mechanics among those without tutorials.

Additionally, participants without tutorials engaged in a broader range of activities, reflecting a more exploratory and varied approach to gameplay. These activities included making dye from flowers, breeding animals, and crafting a wide variety of tools and items. This diversity suggests that non-tutorial players were more inclined to experiment and discover different game mechanics independently. For instance, one participant turned flowers into dye and bred bunnies, showing creativity and exploration beyond basic survival tasks. This tendency to explore and innovate implies that non-tutorial players had a greater sense of autonomy and curiosity, leading to richer and more varied gameplay experiences.

In contrast, those guided by tutorials often focused on basic and repetitive tasks, which may have limited their exploration and creativity. The tutorial users displayed a pattern of quicker abandonment, with several participants giving up after making minimal progress. This trend highlights a potential drawback of tutorials: while they provide structured guidance and a clear pathway for beginners, they may also reduce the player's sense of discovery and intrinsic motivation, leading to earlier disengagement. For example, participants using tutorials often gave up after building basic shelters and crafting simple tools, without progressing to more complex activities.

Overall, the data indicates that the absence of a tutorial fosters greater initiative, adaptability, and sustained engagement. Players without tutorials not only progressed faster in basic tasks but also achieved more complex and diverse accomplishments. They appeared to be more self-reliant and curious, exploring various aspects of the game independently. Conversely, the structured approach provided by tutorials seemed to limit the participants' willingness to explore and take risks, resulting in less varied and innovative gameplay. This analysis suggests that while tutorials can help beginners get started by offering a structured learning path, they might also constrain the depth and breadth of a player's engagement with the game by curbing the exploratory and creative aspects that emerge from unstructured play.

Thus, the findings imply that while tutorials have their place in onboarding new players, fostering an environment that encourages self-directed exploration and problem-solving can lead to a richer and more fulfilling gaming experience. Players who are given the freedom to explore and experiment tend to develop a deeper understanding of the game mechanics and engage more fully with the game's possibilities, ultimately leading to more satisfying and diverse gameplay outcomes.

# Discussion:

In scrutinizing the comparative trajectories of participants within the Minecraft landscape, it becomes apparent that those who availed themselves of tutorials experienced a notable acceleration in their progression, promptly reaching pivotal milestones in their gameplay journey. This expedited advancement may stem from the structured guidance provided by tutorials, enabling players to swiftly grasp fundamental concepts and mechanics. However, this rapid advancement also coincided with a tendency among tutorial users to curtail their gameplay prematurely, perhaps indicating a sense of satisfaction upon achieving a foundational level of competence within the game.

Conversely, participants who eschewed tutorials often embarked on a more circuitous path, necessitating a greater investment of time and effort to navigate the intricacies of the Minecraft universe. Despite this initial hurdle, these individuals demonstrated remarkable resilience, persisting in their gameplay endeavours and ultimately attaining a more extensive array of accomplishments. This suggests that the absence of tutorials fosters an environment conducive to experiential learning, wherein players are compelled to grapple with challenges and devise innovative solutions independently.

Indeed, the divergent trajectories of tutorial users and non-users underscore the multifaceted nature of learning within Minecraft. While tutorials offer a structured framework for initial familiarization with the game, they may inadvertently truncate the exploratory process and limit opportunities for organic discovery. Conversely, players who opt for a tutorial-free approach are afforded the freedom to chart their course, thereby fostering a deeper understanding of the game's mechanics and cultivating a sense of ownership over their gameplay experience.

In conclusion, while tutorials undeniably serve as valuable resources for novice players seeking to acclimate themselves to the Minecraft environment, they represent but one facet of the broader learning paradigm within the game. The divergence in progression trajectories between tutorial users and non-users underscores the nuanced interplay between structured guidance and experiential learning, highlighting the importance of striking a balance between instruction and exploration in fostering a rich and fulfilling gameplay experience.

# Conclusion:

In examining the efficiency of tutorials in introducing new players to the realm of video games, particularly through the lens of Minecraft, this research has yielded insightful findings that shed light on the dynamics of player engagement and learning within the gaming environment. The comparative analysis between participants who utilized tutorials and those who navigated the game independently revealed distinct patterns in gameplay behaviour, resource management, and progression trajectories.

Participants who relied on tutorials often experienced expedited progression, swiftly grasping fundamental concepts and achieving key milestones within the game. This accelerated advancement underscores the efficacy of structured guidance in facilitating initial familiarization with game mechanics. However, this rapid progression was juxtaposed with a tendency among tutorial users to prematurely curtail their gameplay, potentially indicating a threshold of satisfaction upon reaching a foundational level of competence.

Conversely, participants who opted for a tutorial-free approach embarked on a more exploratory and circuitous journey, investing greater time and effort in navigating the intricacies of the Minecraft universe. Despite the initial challenges, these individuals demonstrated remarkable resilience, persisting in their endeavours and ultimately attaining a broader array of accomplishments. This highlights the value of experiential learning, wherein players are compelled to grapple with challenges and devise innovative solutions independently, fostering a deeper understanding and sense of ownership over their gameplay experience.

The findings underscore the multifaceted nature of learning within Minecraft, where tutorials offer a structured framework for initial familiarization but may inadvertently truncate the exploratory process. Striking a balance between structured guidance and experiential learning is crucial in fostering a rich and fulfilling gameplay experience. While tutorials serve as valuable resources for novice players, they represent but one facet of the broader learning paradigm within the game.

In conclusion, the study emphasizes the importance of considering the diverse pathways through which players engage with and learn from video games. By acknowledging the nuanced interplay between instruction and exploration, developers can design more inclusive and engaging gaming experiences that cater to the diverse preferences and learning styles of players. Ultimately, fostering an environment that encourages self-directed exploration and problem-solving is key to cultivating a deeper understanding and appreciation of the game's mechanics, leading to more satisfying and diverse gameplay outcomes.

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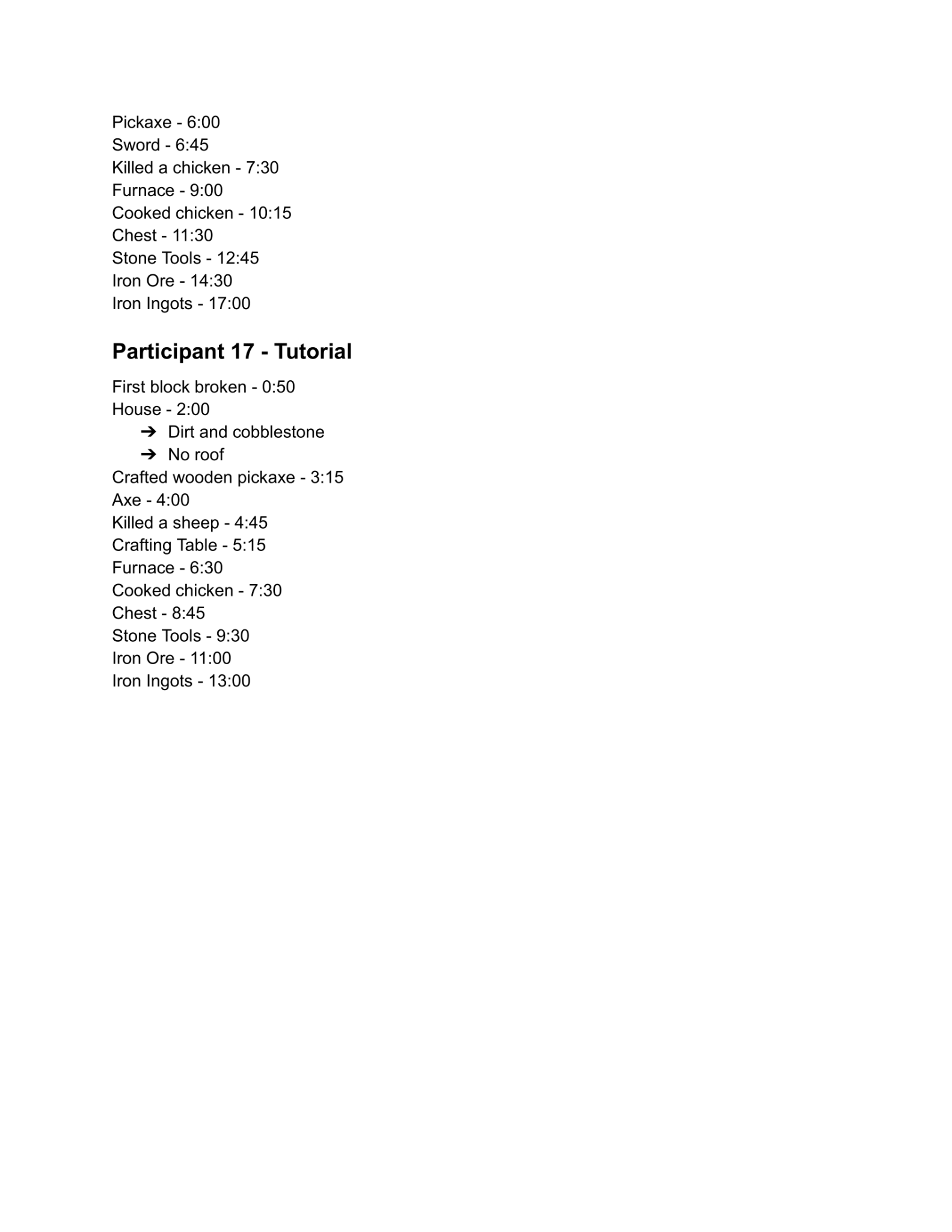
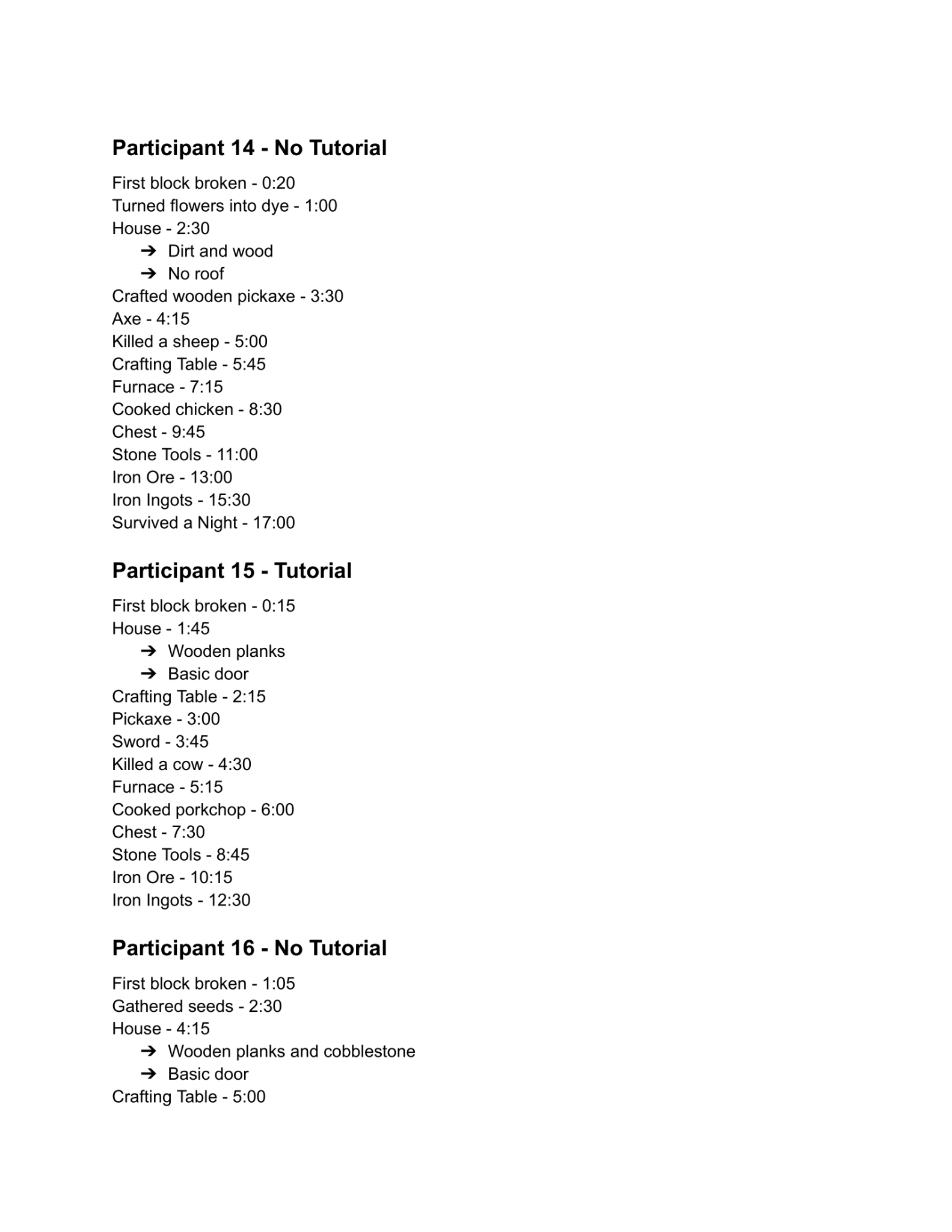
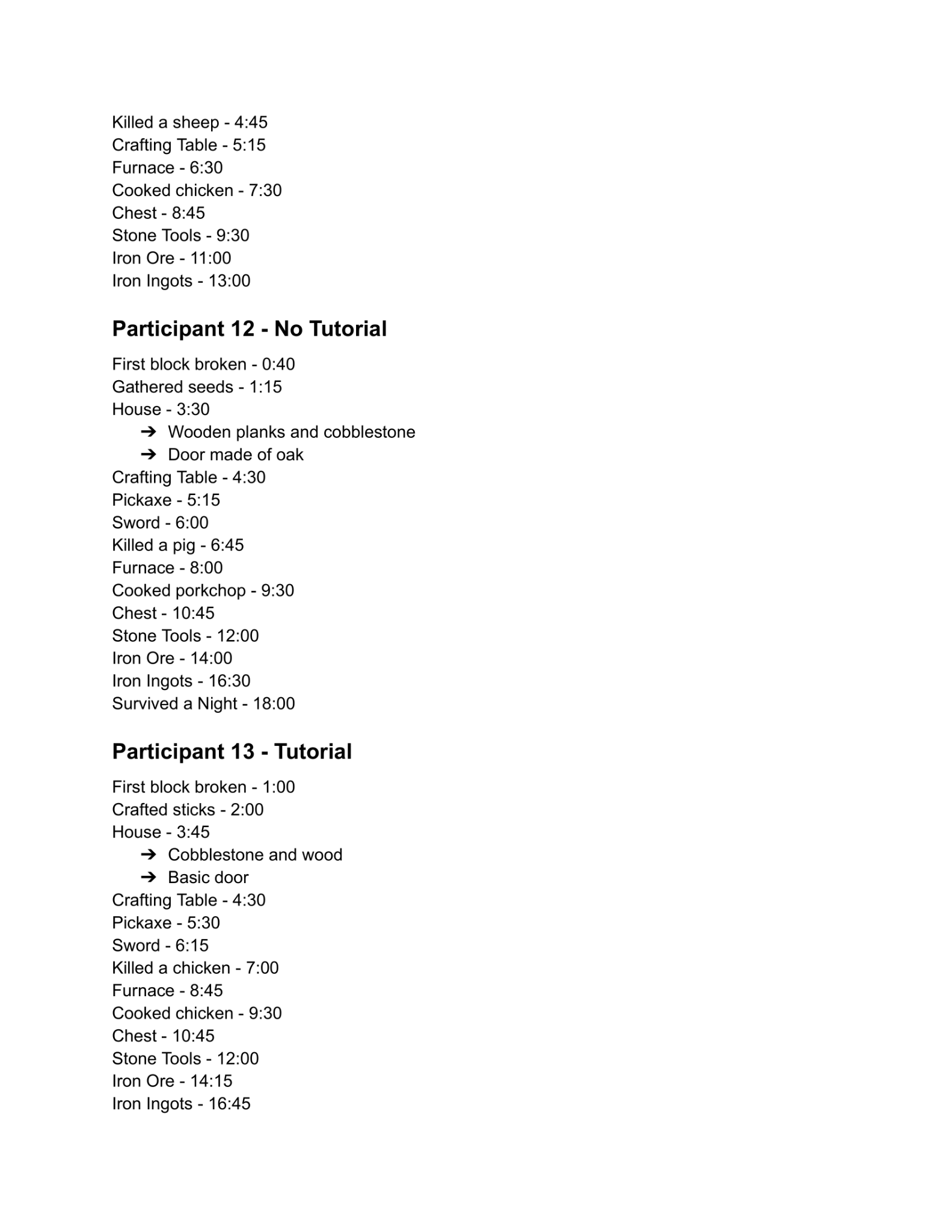
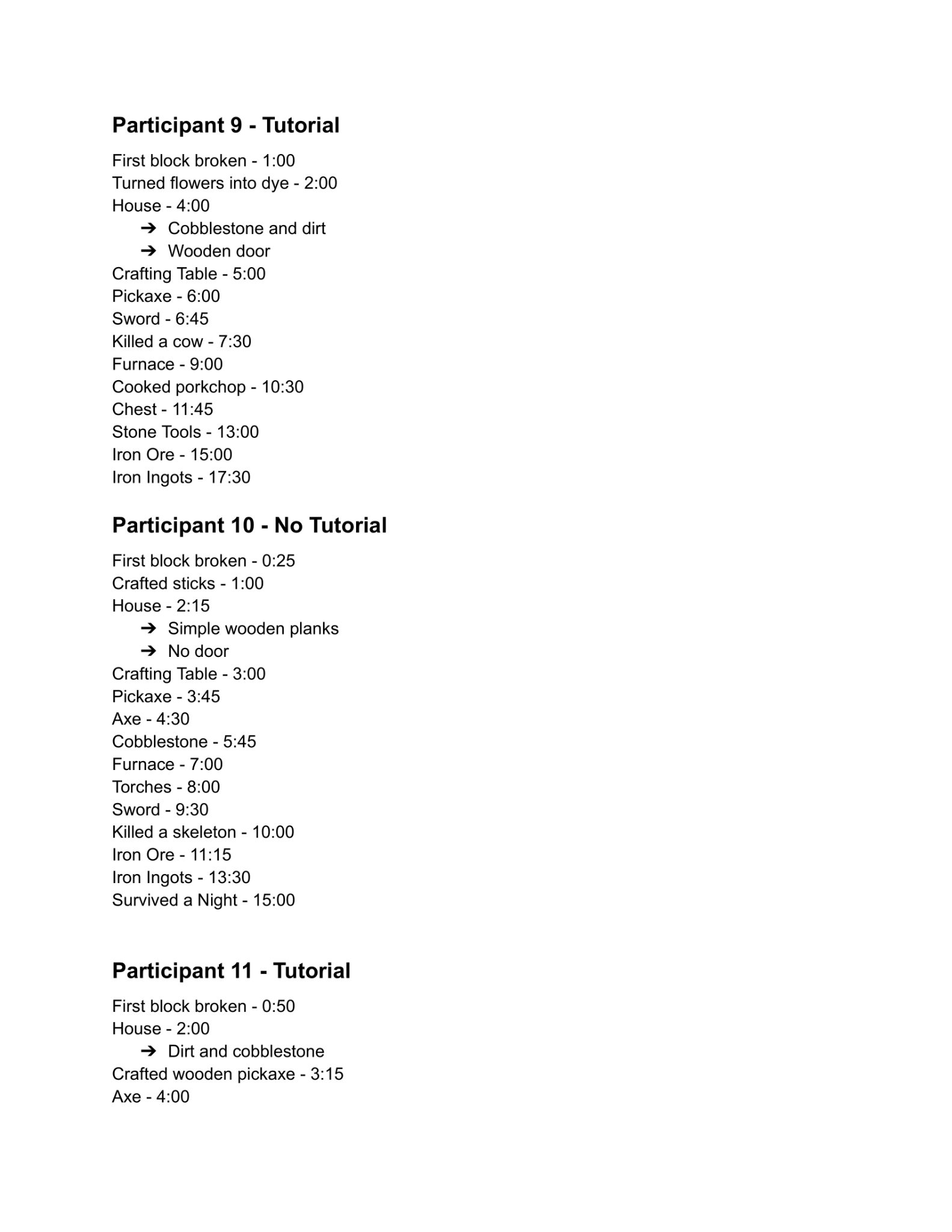
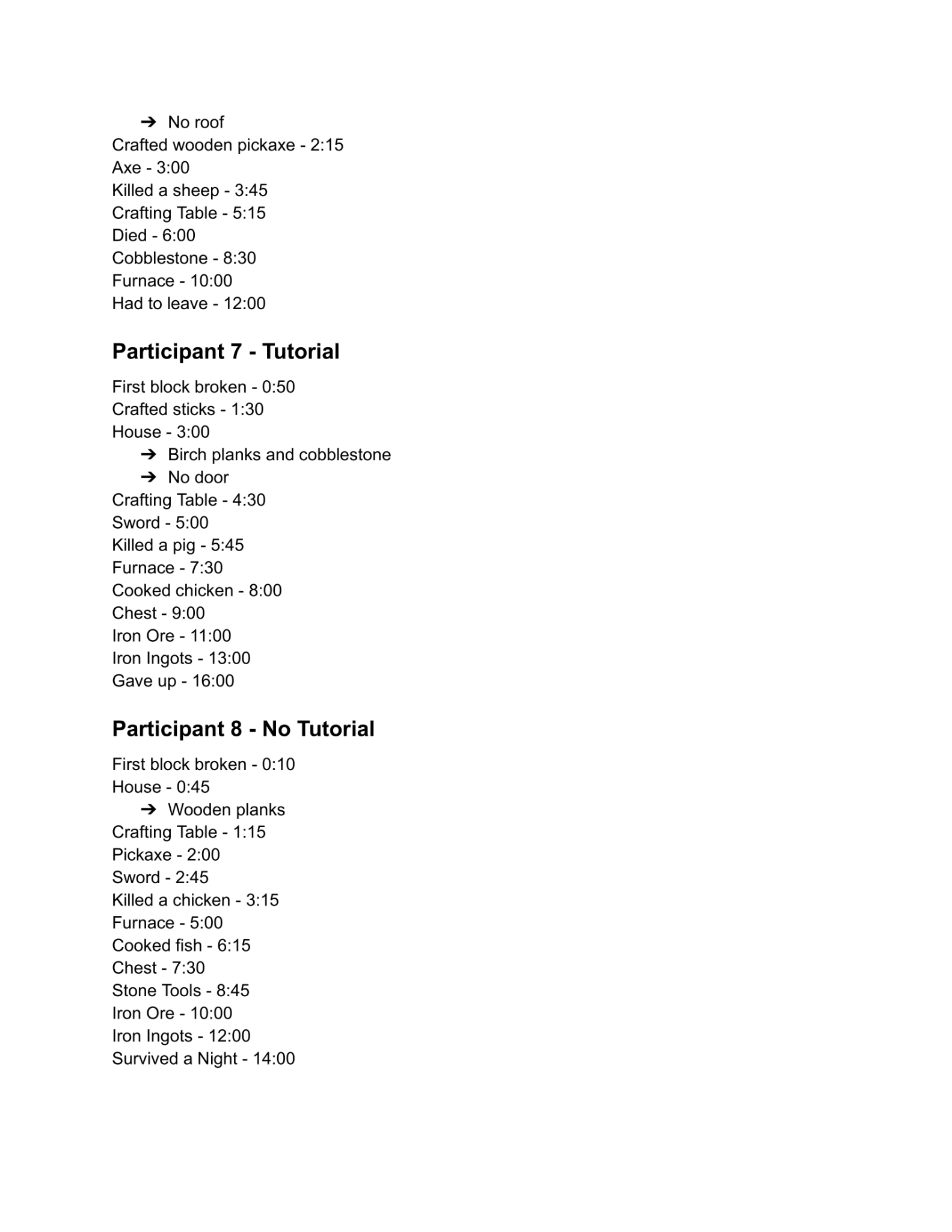
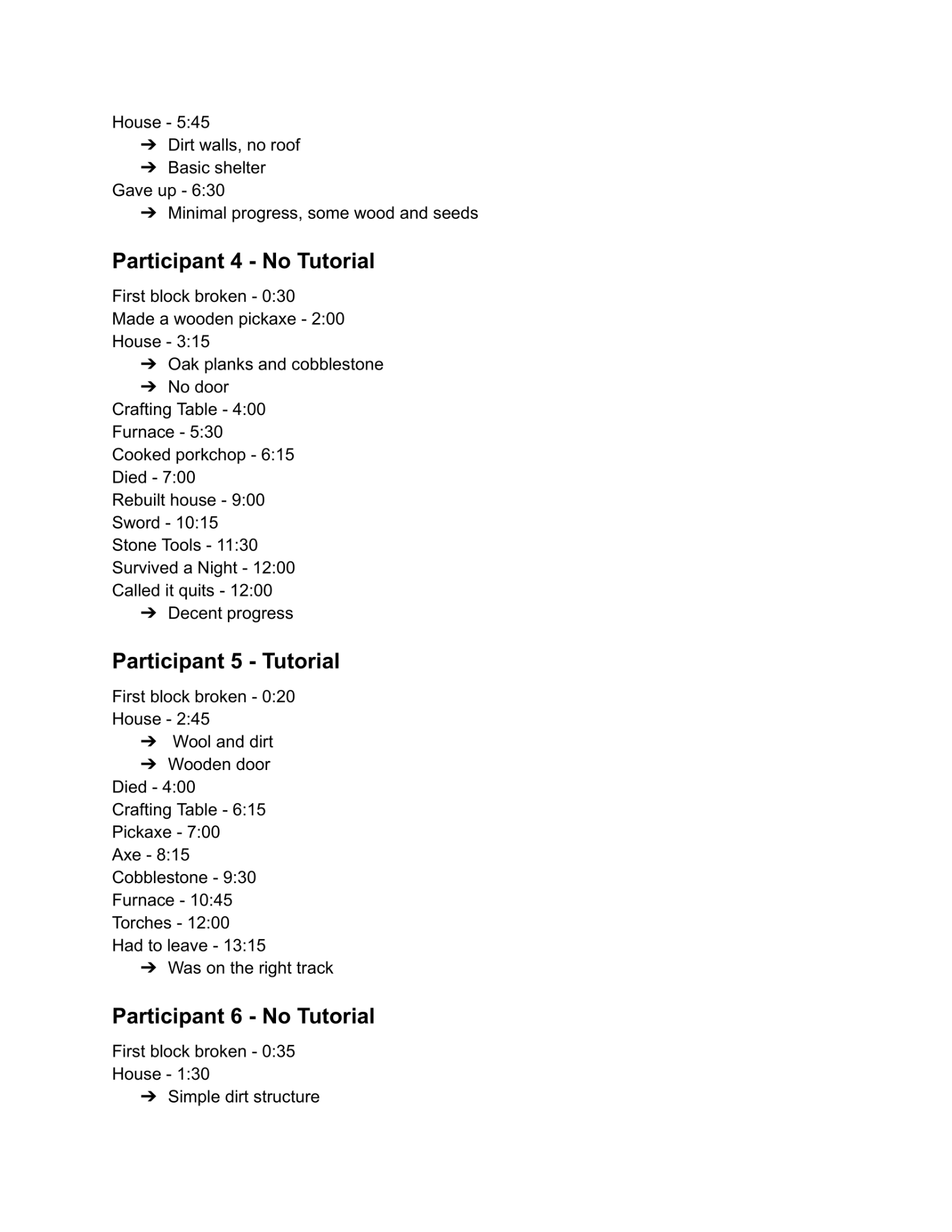
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# Appendices:

### Appendix A:

#### Case Study Notes

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### Appendix B:

#### Ethics Forms

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